List of Symposia

Special Symposium

Special Symposium: Emerging Technologies and Future Aspects for Ceramics

One of the primary objectives of the International Congresses on Ceramics is to share ideas and visions of the future for ceramic and glass materials, and to engage the worldwide ceramics community in a collective effort to expand the use of these materials in both conventional as well as new and exciting applications for the sustainable development of human society in future. For this purpose this Special Symposium will discuss:

- Emerging and innovative technologies for sustainable society
- Future aspects and R&D strategies

in the various technical fields of ceramics and glasses.

Organizers:

- ICC3 President
- ICC3 Steering Committee
- ICF Technical Committee on Ceramics and Environment

Monday, November 15

Room: Conference Hall

14:15 - 16:15

Chairs: Yoshio Sakka (NIMS, Japan) and Hongjie Luo (SICCAS, China)

14:15 - 14:45
SS-001 **The Role of Bioceramics in the Medical Technologies of the Future (Invited)**
P. D. Williams; Wake Forest Institute of Regenerative Medicine, USA

14:45 - 15:15
SS-002 **The Latest Progress of SICCAS in Research (Invited)**
H. Luo; Shanhai Institute of Ceramics, CAS, China

15:15 - 15:45
SS-003 **Global Issues and Challenges for Ceramists in 21C (Invited)**
S. Baik; Pohang University of Science and Technology, Korea

15:45 - 16:15
SS-004 **Research and Technology Development in Ceramics in India: Current Status and Future Directions (Invited)**
G. Sundararajan, Y. R. Mahajan; International Advanced Research Centre for Powder Metallurgy and New Materials, India

16:15 - 16:30 **Break**

16:30 - 19:00

Chairs: Yoshihiko Imanaka (Fujitsu Lab Ltd, Japan) and Nava Setter (EPFL, Switerland)

16:30 - 17:00
SS-005 **Novel Nanostructured Ceramics for Thermoelectric Conversion (Invited)**
K. Koumoto[1,2], Y. Wang[1], C. Wan[1,2], N. Wang[3], R. Zhang[4]; [1]Nagoya University, Japan, [2]Japan Science and Technology Agency, Japan, [3]University of Electronic Science and Technology of China, China

17:00 - 17:30
SS-006 **Future Directions in Ferroelectrics Research: An Academic Perspective (Invited)**
N. Setter; Ecole Polytech Fed de Lausanne, Switzerland

Special Symposium

17:30 - 18:00
SS-007 **Current Status and Future Aspects of R&D Activities on Electroceramic Components in Japanese Industry (Invited)**
H. Takagi; Murata Manufacturing Co., Ltd., Japan

18:00 - 18:30
SS-008 **Multifunctional Oxide Heterostructures (Invited)**
R. Ramesh; University of California, Berkeley, USA

18:30 - 19:00
SS-009 **Recent Progress in New Superconducting Materials (President- Designated)**
H. Hosono; Tokyo Institute of Technology, Japan

Tuesday, November 16

Room: Conference Hall

9:00 - 11:45

Chairs: Hideo Hosono (Tokyo Inst. Tec, Japan) and Peter Sushko (University College London, UK)

9:00 - 9:30
SS-010 **Material Science Gives Some Solutions for Problems We Face: New Materials with New Functions (Invited)**
Y. Shimakawa; Kyoto University, Japan

9:30 - 10:00
SS-011 **Advanced Functional Oxide Materials (Invited)**
M. Martin; Aachen University, Germany

10:00 - 10:30
SS-012 **The Advanced Oxidation Process For Photodecomposition of Organic Dyes by Naturally Abundant Iron Oxide-Based Materials (Invited)**
K. Okada; Tokyo Institute of Technology, Japan

10:30 - 10:45 **Break**

10:45 - 11:15
SS-013 **Predicting Properties of Ca–Al–O Glass Electrides (Invited)**
P. V. Sushko; University College London, UK

11:15 - 11:45
SS-014 **Fabrication and Electronic Properties of TiO_2-based Transparent Conducting Thin Films (Invited)**
T. Hasegawa[1,2]; [1]Univeristy of Tokyo, Japan, [2]Kanagawa Academy of Science and Technology, Japan

16:30 - 19:00

Chairs: Tatsuki Ohji (AIST, Japan) and Paolo Colombo (University of Padova, Italy)

16:30 - 17:00
SS-015 **Cellular Ceramics: Past, Present and Future (Invited)**
P. Colombo; University of Padova, Italy, The Pennsylvania State University, USA

17:00 - 17:30
SS-016 **Inorganic Membrane Development in NGK (Invited)**
H. Sakai; NGK Insulators, Ltd., Japan

17:30 - 18:00
SS-017 **Recent Developments and Future Prospects of Mesoporous Ceramic Materials (Invited)**
K. Kuroda; Waseda University, Japan

18:00 - 18:30
SS-018 **Polymer Derived Processing Technologies (Invited)**
R. Riedel; Technische Universität Darmstadt, Germany

18:30 - 19:00
SS-019 **Novel Visible Light Sensitive TiO_2-based Photocatalysts and their Virucidal and Bactericidal Effects (Invited)**
K. Hashimoto; The University of Tokyo

Wednesday, November 17

Room: Conference Hall

9:00 - 12:15

Chairs: Tohru Sekino (Tohoku University, Japan) and Sylvia Johnson (NASA, USA)

9:00 - 9:30
SS-020 **Ultra High Temperature Ceramics (Invited)**
S. M. Johnson; NASA Ames Research Center, USA

9:30 - 10:00
SS-021 **Prospects and Challenges of Damage Tolerant Layered Ternary Carbides and Nitrides (MAX Phases) (Invited)**
Y. Zhou; Institute of Metal Research, CAS, China

10:00 - 10:30
SS-022 **Ceramic R&D Technology in Ube Industries for Sustainable Society (Invited)**
T. Ishikawa; Ube Industries, Ltd., Japan

10:30 - 10:45 **Break**

10:45 - 11:15
SS-023 **Ceramic Materials and Technologies for Energy Systems (Invited)**
A. Michaelis; Fraunhofer, IKTS, Germany

11:15 - 11:45
SS-024 **Ceramic Integration Technologies for Advanced Energy Systems: *Critical Needs, Technical Challenges, and Opportunities* (Invited)**
M. Singh; NASA Glenn Research Center, USA

11:45 - 12:15
SS-025 **Fiber Reinforced Ceramic Matrix Composites (Invited)**
R. J. Diefendorf; Clemson University, USA

13:45 - 17:00

Chairs: Tatsuki Ohji (AIST, Japan) and John Marra (SRNL, USA)

13:45 - 14:15
SS-026 **Advanced Ceramic Materials for Next-Generation Nuclear Applications (Invited)**
J.E. Marra; Savannah River; National Laboratory, USA

14:15 - 14:45
SS-027 **Mass Production, Applications and Safety Issue of Multi-Walled Carbon Nanotubes (Invited)**
M. Endo; Shinshu University, Japan

14:45 - 15:15
SS-028 **Ceramic Technologies for Sustainability: Perspectives from Siemens Corporate Technology (Invited)**
W. Rossner; Siemens AG, Germany

15:15- 15:30 **Break**

Special Symposium

15:30 - 16:00

SS-029 **Sodium Batteries with Intercalation Electrodes: an Old Story or the Future? (Invited)**

C. Delmas[1], R. Berthelot[1,2], D. Carlier[1], C. Didier[1], M. Guignard[1], C. Ju-Hsiang[3], B. J. Hwang[3], F. Weill[1]; [1]Université de Bordeaux, France, [2]CEA-Grenoble, France, [3]National Taiwan University of Science and Technology, Taiwan

16:00 - 16:30

SS-030 **Highly Efficient Dye-sensitized Solar Cells (Invited)**

L. Han; National Institute for Materials Science, Japan

16:30 - 17:00

SS-031 **Photonic Materials (Invited)**

K. Hirao; Kyoto University, Japan

Symposium 1: Advanced Structure Analysis and Characterization of Ceramic Materials

Main Organizers
- Masatomo Yashima, Tokyo Institute of Technology, Japan
- Scott T. Misture, Alfred University, USA

Co-Organizers
- Xiaolong Chen, Institute of Physics, CAS, China
- Takashi Ida, Nagoya Institute of Technology, Japan
- Isao Tanaka, Kyoto University, Japan

Oral Session

Tuesday, November 16

Room: 1201

9:00 - 10:30: Nano and Micro Structures: from Nanowire to Sintering

Chairs: Scott Misture (Alfred University, USA) and Fumihiro Wakai (Tokyo Institute of Technology, Japan)

9:00 - 9:30
S1-001 **The Mechanism of Catalyzed Nanowire Growth (Invited)**
M. Kirhham, Z. L. Wang, R. L. Snyder; Georgia Institute of Technology, USA

9:30 - 9:45
S1-002 **Three-Dimensional Computer Simulation of Time-Dependent Skeletal Structure Evolution**
Z. S. Nikolic[1], M. M. Ristic[2], K. Shinagawa[3]; [1]University of Nish, Serbia, [2]Serbian Academy of Sciences and Arts, Serbia, [3]Kagawa University, Japan

9:45 - 10:00
S1-003 **Computer Study of Liquid Phase Sintering – Three-Dimensional Time Dependent Rearrangement**
Z. S. Nikolic[1], F. Wakai[2]; [1]University of Nish, Serbia, [2]Tokyo Institute of Technology, Japan

10:00 - 10:15
S1-004 **Three-Dimensional Quantification of Mesopore Networks in Ceramics**
A. Suzuki, R. Miura, H. Tsuboi, N. Hatakeyama, A. Endou, H. Takaba, A. Miyamoto; Tohoku University, Japan

10:15 - 10:30
S1-005 **Sintering of Laser-Fused Microspheres in the System Al_2O_3-Y_2O_3-ZrO_2**
C. Oelgardt, J. G. Heinrich; Clausthal University of Technology, Germany

10:30 - 10:45 **Break**

10:45 - 11:30: Structure Aspects under Compression and High Pressure

Chairs: Isao Tanaka (Kyoto University, Japan) and Nigel Marks (Curtin University, Australia)

10:45 - 11:15
S1-006 **Mechanism of Amorphization in Boron Carbide (B_4C) Under Uniaxial Compression (Invited)**
W.-Y. Ching, S. Aryal; University of Missouri-Kansas City, USA

11:15 - 11:30
S1-007 **Crystal Structure of Yttria and Scandia Under Isothermal Pressure**
I. Halevy[1,2], S. Barzilai[2,3], M. L. Winterrose[1], S. Ghose[4], E. Tiferet[2], O. Yeheskel[2]; [1]California Institute of Technology, USA, [2]Nuclear Research Centre - Negev, Israel, [3]Ben-Gurion University, Israel, [4]Brookhaven National Laboratory NSLS, USA

Symposium 1

14:30 - 16:00: Magnetic, Crystal and Micro-Structures

Chairs: Xiaolong Chen (The Institute of Physics, China) and Takashi Ida (Nagoya Institute of Technology, Japan)

14:30 - 15:00

S1-008 **The Validity of Neutron Magnetic and Crystal Structure Analysis Using Single Crystals on Material Science (Invited)**

Y. Noda; Tohoku University, Japan

15:00 - 15:15

S1-009 **High-Coercivity Iron Oxide Based Nanocomposites - Particle Shape and Magnetic Structure by Synchrotron and Neutron Scattering**

J. P. Vejpravova[1], S. Danis[1], J. Prokleska[1], P. Brazda[2], V. Vales[1], S. Doyle[3], C. Ritter[4], A. Mantlikova[1], D. Niznansky[1]; [1]Charles University Prague, Czech Republic, [2]CAS, Czech Republic, [3]ANKA, Germany, [4]Institute Laue Langevin, France

15:15 - 15:30

S1-010 **Magnetism Behaviors of Nano-sized Iron Oxide Contented Glass Ceramics**

C.-S. Hsi[1], F.-C. Hsu[1], M.-C. Wang[2], Y.-S. Chen[3]; [1]National United University, Taiwan, [2]Kaohsiung Medical University, Taiwan, [3]I-Shou University, Taiwan

15:30 - 15:45

S1-011 **Identification and Lattice Location of Oxygen in Bulk α-Si_3N_4 and β-Si_3N_4/SiO_2 Interfaces**

J. C. Idrobo[1,2,3], M. P. Oxley[1,2], W. Walkosz[3], R. F. Klie[3], S. Öğüt[3], B. Mikijelj[4], S. J. Pennycook[2,1], S. T. Pantelides[1,2]; [1]Vanderbilt University, USA, [2]Oak Ridge National Laboratory, USA, [3]University of Illinois at Chicago, USA, [4]Ceradyne Inc., USA

15:45 - 16:00

S1-012 **Precise XPS Depth Profile of Float Glass Surface Using C_{60} Ion Beam**

Y. Yamamoto, K. Yamamoto; Asahi Glass, Co., LTD., Japan

16:00 - 16:15 **Break**

16:15 - 18:15: New Materials, Defects, Thermodynamics and Phase Equilibria

Chairs: Takashi Ida (Nagoya Institute of Technology, Japan) and Vasily Lutsyk (Buryat Scientific Centre of RAS, Russia)

16:15 - 16:45

S1-013 **New Functional Material Exploration in Borate and Carbonate Systems (Invited)**

X. L. Chen, S. F. Jin, Y. P. Sun, J. G. Guo, G. Wang, W. Y. Wang; Chinese Academy of Sciences, China

16:45 - 17:00

S1-014 **New Defect-Crystal-Chemistry Model for Coupled Non-Vegardianity and Non-Random Defect Structure of Defect-Fluorite MO_2-$LnO_{1:5}$ Solid Solutions.**
Part II: Local-Strcure and Ionic Conductivity Analysis

A. Nakamura; Japan Atomic Energy Agency, Japan

17:00 - 17:15

S1-015 **New Defect-Crystal-Chemistry Model for Coupled Non-Vegardianity and Non-Random Defect Structure of Defect-Fluorite MO_2-$LnO_{1:5}$ Solid Solutions.**
Part III: Toward Quantitative Defect-thermodynamic Description

A. Nakamura; Japan Atomic Energy Agency, Japan

17:15 - 17:30

S1-016 **Crystals of Different Dispersity Competition in 4-Phase Invariant Reactions and Peritectical Stages of 3-Phase Reactions with Mass Increment Sign Changing**

V. Lutsyk[1,2], E. Nasrulin[1,2]; [1]RAS, Russia, [2]Buryat State University, Russia

17:30 - 17:45

S1-017 **Three-Phase Reaction Type Changing Determination in Global Baricentric Coordinates**

V. Lutsyk[1,2], A. Zyryanov[2]; [1]RAS, Russia, [2]Buryat State University, Russia

17:45 - 18:00
S1-018 **Phase Equilibria and Ceramic Materials in the Systems Based on Ceria, Zirconia, Hafnia with Lanthanides and Yttria**
E. R. Andrievskaya; National Ukrainian Academy of Sciences, Ukraine

18:00 - 18:15
S1-037 **Structural and Dielectric Properties of $Mg_{0.95}Zn_{0.05}TiO_3$-$Ca_{0.8}Sr_{0.2}TiO_3$ Ceramic Composites**
S. Keshri, S. S. Rajput; Birla Institute of Technology, India

Wednesday, November 17

Room: 1201

9:00 - 10:30: Radiation-Driven Processes, Crystallite Size and Microstructure

Chairs: Isao Tanaka (Kyoto University, Japan) and Wai-Yim Ching (University of Missouri-Kansas City, USA)

9:00 - 9:30
S1-019 **Atomistic Simulation of Novel Solid-State Chemistry and Radiation-Driven Processes in Oxides (Invited)**
N. A. Marks[1], D. J. Carter[1], G. R. Lumpkin[2], K. R. Whittle[2], C. Jiang[3], B. P. Uberuaga[3], C. R. Stanek[3], K. E. Sickafus[3]; [1]Curtin University of Technology, Country, [2]Australian Nuclear Science and Technology Organisation, Australia, [3]Los Alamos National Laboratory, USA

9:30 - 10:00
S1-020 **Evaluation of Crystallite Size Distribution by Capillary Spinner-Scan Method in Synchrotron Powder Diffractometry (Invited)**
T. Ida, T. Goto, H. Hibino; Nagoya Institute of Technology, Japan

10:00 - 10:15
S1-021 **Grain Boundary Transition in α-Al_2O_3 Ceramics and the Correlated Effect on Bi-modal Microstructure**
H. Gu, P. Qian; Chinese Academy of Sciences, China

10:15 - 10:30
S1-022 **Effect of Uniaxial Pressing on Changes in the Microstructure of SiC**
M. Beata, G. Agnieszka, S. Arkadiusz; AGH –University of Science and Technology, Poland

10:30 - 10:45 **Break**

10:45 - 12:00: Crystal Structure Analysis and in Situ Measurements

Chairs: Fujio Izumi (National Institute for Materials, Japan) and Masatomo Yashima (Tokyo Institute of Technology, Japan)

10:45 - 11:15
S1-023 **Analysis of Unknown and Disordered Crystal Structures from X-Ray Powder Diffraction Data (Invited)**
K. Fukuda; Nagoya Institute of Technology, Japan

11:15 - 11:30
S1-024 **Structural Analysis on Non-stoichiometric Lithium Cuprates ($Li_{2+x}CuO_{2+x/2}$)**
L. M. Palacios-Romero, G. González, H. Pfeiffer; Universidad Nacional Autónoma de México, Mexico

11:30 - 11:45
S1-025 **Study of Influence of Temperature on Domain Switchability Using *In-Situ* Neutron Diffraction**
S. Pojprapai[1], H. Simons[2], A. Ngamjarurojana[3], A. Studer[4], M. Hoffman[2]; [1]Suranaree University of Technology, Thailand, [2]UNSW, Australia, [3]Chiang Mai University, Thailand, [4]Australian Nuclear Science and Technology Organisation, Australia

Symposium 1

11:45 - 12:00
S1-026 **In-Situ Diffraction Study of the Spinel System $Ni_xMg_{1-x}Al_2O_4$ Under Reducing Conditions**
S. T. Misture, B. E. Hill, M. E. Miller; Alfred University, USA

13:15 - 15:00 Precise Structure Analysis by Diffraction and NMR

Chairs: Scott Misture (Alfred University, USA) and Koichiro Fukuda (Nagoya Institute of Technology, Japan)

13:15 - 13:45
S1-027 **Three-Dimensional Visualization of Electron- and Nuclear-Density Distributions in Inorganic Materials by MEM-Based Technology (Invited)**
F. Izumi, K. Momma; National Institute for Materials Science, Japan

13:45 - 14:00
S1-028 **Crystal Structure, Oxygen Diffusion Pathway and Oxygen Permeability of Pr_2NiO_4-Based Mixed Conductors**
M. Yashima[1], H. Yamada[1], T. Ishihara[2], N. Sirikanda[2]; [1]Tokyo Institute of Technology, Japan, [2]Kyushu University, Japan

14:00 - 14:15
S1-029 **Increasing Sensitivity in Solid State NMR Applied to Ceramics and Biomaterials: the Magic Angle Coil Spinning Technique (MACS)**
C. Bonhomme[1], F. Baboneau[1], B. Fassbender[1,2], D. Sakellariou[2], P. Aguiar[2]; [1]Collège de France, France, [2]CEA, France

14:15 - 14:30
S1-030 **Neutron Diffraction Study on Deuterium-substituted Oxy-hydroxyapatite**
H. Fujimori[1], K. Morita[1], K. Okanishi[1], K. Oyama[2], M. Yashima[3]; [1]Yamaguchi University, Japan, [2]Tohoku University, Japan, [3]Tokyo Institute of Technology, Japan

14:30 - 14:45
S1-031 **Solid State NMR Characterization of Ceramic Materials : Combined Experimental and *Ab-initio* Investigations**
C. Gervais, F. Babonneau, F. Mauri; UPMC Univ Paris 06, France

14:45 - 15:00
S1-032 **In-Situ Measurement of Internal Temperature Distribution of Sintered Materials Using Ultrasonic Technique**
I. Ihara, T. Tomomatsu; Nagaoka University of Technology, Japan

15:00 - 15:15 **Break**

15:15 - 16:45: Structure Analysis of Perovskite-Type and Related Materials

Chairs: Masatomo Yashima (Tokyo Institute of Technology, Japan) and Xiaolong Chen (The Institute of Physics, China)

15:15 - 15:45
S1-033 **Octahedral Distortions in Layered Perovskites via Combined X-ray and Neutron Powder Diffraction (President-Designated)**
E. J. Nichols, S. T. Misture; Alfred University, USA

15:45 - 16:00
S1-034 **Structural Phase Transitions in $KNbO_3$ and $Na_{0.5}K_{0.5}NbO_3$**
T. Sakakura, J. Wang, N. Ishizawa, Y. Inagaki, K. Kakimoto; Nagoya Institute of Technology, Japan

16:00 - 16:15
S1-035 **Analysis of Order of Structural Phase Transition of $Sr_{1-x}Ba_xZrO_3$ by Temperature Regulated X-ray Diffraction and Thermal Analysis**
T. Sugimoto, T. Hashimoto; Nihon University, Japan

16:15 - 16:30

S1-036 **Atomic-Resolution High-Angle Dark-Field Scanning Transmission Electron Microscopy of Microwave Dielectric Ceramics**
R. Freer[1], F. Azough[1], B. Schaffer[2]; [1]University of Manchester, UK, [2]STFC, UK

16:30 - 16:45

S1-038 **Local Structure and Phase Formation of Perovskite/Pyrochlore Structure of Lead Zinc Niobate Powders**
A. Ngamjarurojana[1], W. Chaiammad[1], A. Rujiwatra[1], R. Yimnirun[2], S. Ananta[1]; [1]Chiang Mai University, Thailand, [2]Suranaree University of Technology, Thailand

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 -14:00

S1-P001 **Synthesis of Expansive Mortar Developed in Laboratory for Dismounting of Ornamental Rocks**
D. V. Lucena, D. B. C. Campos, H. L. Lira, G. A. Neves; UAEMa/ CCT/ UFCG, Campina Grande –PB, Brazil

S1-P002 **Development of Phase Inhomogeneity in the Sol-Gel System Tianium(IV) Alkoxide and Barium Acetate: In-Situ SAXS Study**
T. M. Stawski, S. A. Veldhuis, J. E. ten Elshof, H. L. Castricum, D. H. A. Blank; University of Twente, The Netherlands

S1-P003 **Electron Density Distribution, Crystal Structure and Luminescence Properties of $Li_2SrSiO_4:Eu^{2+}$**
Y. Hirano[1], T. Iwata[1], K. Momma[2], K. Fukuda[1]; [1]Nagoya Institute of Technology, Japan, [2]National Institute for Materials Science, Japan

S1-P004 **Structural Evolution of $FeCO_3$ through Decarbonation at Elevated Temperatures**
J. Wang[1], T. Sakakura[1], N. Ishizawa[1], H. Eba[2]; [1]Nagoya Institute of Technology, Japan, [2]Tokyo City University, Japan

S1-P005 **First Principles Calculation of $La_3Ta_{0.5}Ga_{5.5}O_{14}$ Crystal with Intrinsic Defects**
C-Y. Chung[1], R. Yaokawa[1,2], H. Mizuseki[1], S. Uda[1], Y. Kawazoe[1]; [1]Tohoku University, Japan, [2]Citizen Holdings Co. Ltd., Japan

S1-P006 **Detection of Human Serum Albumin Adsorption on Titania Surface Using Surface Plasmon Resonance Under Various pH**
K. Ii, S. Ohshio, H. Akasaka, H. Saitoh; Nagaoka Univ. Tech., Japan

S1-P007 **+Detection of Titania Film Etching by Phosphate Solutions Using Surface Plasmon Resonance**
K. Ii, S. Ohshio, H. Akasaka, H. Saitoh; Nagaoka Univ. Tech., Japan

S1-P008 **Synthesis, Disordered Crystal Structure and Twin-Related Domains of a New Compound in Al-Si-O-C System**
H. Inuzuka[1], M. Kaga[1], T. Iwata[1], H. Nakano[2], K. Fukuda[1]; [1]Nagoya Institute of Technology, Japan, [2]Toyohashi University of Technology, Japan

S1-P009 **Structural Disorder and Photoluminescence Properties of Bi^{3+}- and Mn^{2+}-Codoped $Ba_3MgSi_2O_8$ Phosphor**
H. Oka, T. Horie, T. Iwata, K. Fukuda; Nagoya Institute of Technology, Japan

S1-P010 **Investigation of the Local Structure Distortion in PZT Polycrystals due to Electrical Cyclic Loading via Sychrotron X-ray Absorption Spectroscopy**
W. Kempet[1], S. Pojprapai[1], R. Yimnirun[1], W. Klysubun[2], P. Sombunchoo[2]; [1]Suranaree University of Technology, Thailand, [2]Synchrotron Light Research Institute, Thailand

Symposium 1

S1-P011 **Corrosion of Fe-and Ni-base Alloys between 600 and 800°C in H_2S-H_2O Gases**
M. J. Kim[1], D. B. Lee[1], J.-M. Doh[2]; [1]Sungkyunkwan University, Korea, [2]KIST, Korea

S1-P012 **Observation of Surface Spin Effects In La-doped $CoFe_2O_4/SiO_2$ Nanocomposites**
S. Burianova, J. P. Vejpravova, D. Niznansky, P. Holec; Charles University, Czech Republic

S1-P013 **Crystal Structure of Exhaust Gas Catalyst Ceria-Zirconia Nanoparticles $Ce_xZr_{1-x}O_2$ ($0 \leq x \leq 1$)**
D. Sato[1], M. Yashima[1], T. Wakita[2]; [1]Tokyo Institute of Technology, Japan, [2]Daiichi Kigenso Kagaku Kogyo Co.Ltd, Japan

S1-P014 **Magnetic Force Microscopy Studies of Superparamagnetic Nanoparticles**
B. Bittova, J. P. Vejpravova, D. Niznansky; Charles University, Czech Republic

S1-P015 **Preparation and Process Clarification of Metal Nano-Plate by Pulse Wire Discharged Method in Liquid Media**
Y. M. Izuari, K. Josho, Y. Tokoi, T. Suzuki, T. Nakayama, H. Suematsu, K. Niihara; Nagaoka University of Technology, Japan

S1-P016 **Crystal Structure and Electron Density Analysis of Monoclinic and Hexagonal Hydroxyapatites**
Y. Yonehara[1], M. Yashima[1], H. Fujimori[2]; [1]Tokyo Institute of Technology, Japan, [2]Yamaguchi University, Japan

S1-P017 **Crystal Structure and Oxygen Deficiency δ of Perovskite-Type $La_{0.4}Ba_{0.6}CoO_{3-\delta}$ through High-Temperature Neutron Diffractometry**
Y.-C. Chen[1], M. Yashima[1], T. Ohta[1], S. Yamamoto[1], T. Takizawa[1], K. Ohoyama[2]; [1]Tokyo Institute of Technology, Japan, [2]Tohoku University, Japan

S1-P018 **Structural Study of Li_2S-P_2S_5 Superionic Glasses by Neutron and X-ray Diffraction**
Y. Onodera[1], K. Mori[1], T. Otomo[2], A. C. Hannon[3], K. Itoh[1], M. Sugiyama[1], T. Fukunaga[1]; [1]Kyoto University, Japan, [2]High Energy Accelerator Research Organization, Japan, [3]ISIS Facility, UK

S1-P019 **Investigation of Electrical Fatigue Behavior of a Soft PZT Ceramic at Elevated Temperature**
S. Kampoosiri, B. Marungsri, R. Yimnirun, S. Pojprapai; Suranaree University of Technology, Thailand

S1-P020 **Preparation and Characterization of the Sodium Gallium Titanate Type $Na_xGa_{4+x}Ti_{1-x}O_8$**
S. Oinuma, S. Kano, S. Ito, K. Fujimoto; Tokyo University of Science, Japan

S1-P021 **Synthesis and Characterization of Bismuth Sodium Zirconate Powders**
P. Jaiban, S. Jiansirisomboon, A. Watcharapasorn; Chiang Mai University, Thailand

S1-P022 **Preparation and Phase Transformation of $Bi_{0.5}Na_{0.5}Zr_xTi_{1-x}O_3$**
A. Rachakom, S. Jiansirisomboon, A. Watcharapasorn; Chiang Mai University, Thailand

S1-P023 **Structure and Properties of Elemental Substituted Ilmenite, $FeM_xTi_{1-x}O_3$**
D. Nakatsuka, T. Fujii, M. Nakanishi, J. Takada; Okayama University, Japan

S1-P024 **Distribution of K^+ and Cs^+ Ions in the Alkali Layer of (K^+, Cs^+)-β-Ferrite**
H. Watarai, K. Fujimoto, S. Ito; Tokyo University of Science, Japan

S1-P025 **Fabrication of Highly Densified Hydroxyapatite Ceramics with Boron Oxide Addition and its Superplastic Deformation**
K. Tsuchiya[1], Y. Sakka[2], I. J. Davies[3], S. Koda[1], K. Itatani[1]; [1]Sophia University, Japan, [2]National Institute for Materials Science, Japan, [3]Curtin Uniersity of Technology, Australia

S1-P026 **Identification of Donor Additives in $BaTiO_3$ by X-Ray Absorption Spectroscopy**
W. Chaiammad, S. Choommaung, S. Anata, A. Ngamjarurojana; Chiang Mai University, Thailand

S1-P027 **Molecular Dynamics Simulation of Lead Borate and Related Glasses in Multicomponent Systems for Low Melting Vitrification of Nuclear Wastes**
S. Kato, Y. Benino, T. Nanba, S. Sakida; Okayama University, Japan

S1-P028 **Effect of Andalusite on Physical and Thermal Properties of High Alumina Low-cement Castables**
S. Emami, S.A. Ahmadi, F. Soleymani; Material and Energy Research Center, Iran

S1-P029 **Size Dependent Structural and Magnetic Properties of $CdFe_2O_4$ Nanoparticles Synthesized by Sol-gel Auto Combustion Method**
D. R. Mane[1], S. E. Shirsath[2], R. H. Kadam[1]; [1]Shrikrishna Mahavidyalaya Gunjoti, India, [2]Dr. Babasaheb Ambedkar Marathwada University, India

S1-P030 **Characterization of Attapulgite for Human Health**
W. Acchar[1], A. C. S. da Costa[1], L. S. Barreto[2]; [1]Federal University of Rio Grande do Norte, Brazil, [2]UFS, Brazil

S1-P031 **In Situ Time-Resolved X-ray Diffraction of Tobermorite Synthesis Process under Hydrothermal Condition**
J. Kikuma[1], M. Tsunashima[1], T. Ishikawa[1], S. Matsuno[1], A. Ogawa[2], K. Matsui[2], M. Sato[3]; [1]Asahi-KASEI Corporation, Japan, [2]Asahi-KASEI Construction Materials Corporation, Japan, [3]SPring-8/JASRI, Japan

S1-P032 **THz Spectroscopy of Perovskite Oxides as Solid State Chemical Sensors**
K. Tajima, T. Arakawa; Kinki University, Japan

S1-P033 **Theoretical Study on Temperature Regions of Phases of $BaTiO_3$**
C. Yu-ping, H. Dai-zhao, N. Ru-yun; Mechanical Engineering College, China

S1-P034 **Sintering and Thermal Expansion of Low Expansion Kosnarite Ceramics**
M. V. Sukhanov, V. I. Pet'kov, D. V. Firsov; Nizhni Novgorod State University, Russia

S1-P035 **Low Toughness Fracture in Al 7191-20% SiCp Aluminum Matrix Composite**
M. M. Ranjbarann; Shahid Rajaee University, Iran

S1-P036 **Neutron Diffraction Study on the Xe behavior in Clathrate Hydrate Analyzed by Rietveld/Maximum Entropy Method**
N. Igawa[1], T. Taguchi[1], A. Hoshikawa[2], H. Yamauchi[1], A. Birumachi[1], Y. Ishii[3]; [1]Japan Atomic Energy Agency, Japan, [2]Ibaraki University, Japan, [3]Radiation Application Development Association, Japan

S1-P037 **Effects of Rare Earth and Nb Substitutions on Crystal Structure and Ferroelectric Properties of $Pb(Zr,Ti)O_3$ Ferroelectric Oxide**
Y. Idemoto, H. Taka, N. Kitamura; Tokyo University of Science, Japan

S1-P038 **Improvement of Strength and Oxidation Resistance for SiC/Graphite Composites by SiC Coating**
W. Yang, H. Li, Z. Shi, Z. Jin, G. Qiao; Xi'an Jiaotong University, China

S1-P039 **Preparation and Characterization of Standard Thin Film Samples for ERDA Measurement by Using Naphthalocyanine**
T. Suzuki, H. Akasaka, T. Miyazaki, A. Harada, H. Saitoh, I. Nishiguchi; Nagaoka University of Technology, Japan

S1-P040 **Synthesis and Crystal Structure of $Na_8B_{74.5}Si_{17.5}$**
H. Morito[1], B. Eck[2], R. Dronskowski[2], H. Yamane[1]; [1]Tohoku University, Japan, [2]RWTH Aachen University, Germany

S1-P041 **Crystal Structure of Perovskite-type Oxyfluorides, $BaMO_2F$ (M=In, Sc, Fe)**
T. Katsumata[1], R. Suzuki[1], M. Nakashima[2], S. Suzuki[2], D. Mori[2], Y. Inaguma[2]; [1]Tokai University, Japan, [2]Gakushuin University, Japan

S1-P042 **New Defect-Crystal-Chemistry Model for Non-Vegardianity and Non-Random Defect Structure of Defect-Fluorite MO_2-$LnO_{1:5}$ Solid Solutions (M^{4+}=Ce(Th), Zr(Hf): Ln^{3+}=Lanthanide). Part I: Non-Vegardianity Analysis**
A. Nakamura; Japan Atomic Energy Agency, Japan

S1-P043 **Densification of Submicrometric Composites in Al_2O_3-ZrO_2 System**
B. Macherzynska, Z. Pedzich, D. Pryga; AGH – University of Science and Technology, Poland

S1-P044 **A Study of the Dispersant Effect Toward Lead-free Piezoelectric Ceramic Powder Bismuth Sodium Titanate**
W.-P. Weng, P.-C. Chen, H.-Y. Yen, F.-Y. Siao, C.-C. Chang; Lunghwa University of Science and Technology, Taiwan

Symposium 1

S1-P045 **Structure of MgO Thin Film Deposited on Silicon (001) in High Oxygen Pressure by Pulsed Laser Deposition**
S. Kaneko[1,2], K. Akiyama[1], T. Ito[1], M. Yasui[1], T. Ozawa[1], M. Soga[1], Y. Motoizumi[1], M. Yoshimoto[2]; [1]Kanagawa Prefectural Government, Japan, [2]Tokyo Institute of Technology, Japan

S1-P046 **Atomistic Simulation of $MgO/BaZrO_3$ Heterointerfaces**
C. A. J. Fisher, A. Kuwabara, H. Moriwake; Japan Fine Ceramics Center, Japan

S1-P047 **TEM Investigation of Oxynitride Glass-ceramics: Effect of Parent Glass Composition**
E. Dölekçekiç[1], H. Yurdakul[1], S. Turan[1], M. J. Pomeroy[2], S. Hampshire[2]; [1]Anadolu University, Turkey, [2]University of Limerick, Ireland

S1-P048 **Enerji Filtered Transmission Electron Microscopy and Electron Energy Loss Spectroscopy Analysis of Silicon Nitride-Titanium Joints**
O. Tunçkan, S. Turan, H. Yurdakul; Anadolu University, Turkey

S1-P049 **Tilt Transitions in $Ag(Ta_xNb_{1-x})O_3$ Thin Films**
R. Johnson-Wilke[1], D. Tinberg[1], S. Trolier-McKinstry[1], Y. Han[2], I. Reaney[2], M. Telli[3], I. Levin[4], D. Fong[5], T. Fister[5], S. Streiffer[5]; [1]Pennsylvania State University, USA, [2]University of Sheffield, UK, [3]Kocaeli University, Turkey, [4]National Institute of Standards and Technology, USA, [5]Argonne National Laboratory, USA

Symposium 2A: Novel Chemical Processing; Sol-Gel and Solution-Based Processing

Main Organizers
- Hiromitsu Kozuka, Kansai University, Japan
- Kazumi Kato, AIST, Japan
- Byeong-Soo Bae, KAIST, Korea

Co-Organizers
- Plinio Innocenzi, University of Sassari, Italy
- Jennifer A. Lewis, University of Illinois,USA
- Kensuke Makita, Central Glass Co., Ltd., Japan
- Kazuki Nakanishi, Kyoto University, Japan
- Michael Popall, Fraunhofer-Institut für Silicatforschung ISC, Germany

Oral Session

Monday, November 15

Room: 801

14:15 - 14:45: Sol-Gel Chemistry

Chair: Hiromitsu Kozuka (Kansai University, Japan)

14:15 - 14:45
S2A-001 **Introducing Ecodesign in Silica Sol-Gel Materials (Invited)**
N. Baccile, F. Babonneau, B. Thomas, T. Coradin; Collège de France, France.

14:45 - 16:00: Macroporous Materials I

Chair: Florence Babonneau (Univ Paris 06, CNRS, France)

14:45 - 15:15
S2A-002 **Hierarchically Porous Monoliths Applied to Separation Sciences (Invited)**
K. Nakanishi[1], R. Ito[1], K. Morisato[1,2]; [1]Kyoto University, Japan, [2]GL Sciences Inc., Japan

15:15 - 15:30
S2A-003 **Hierarchically Macro/mesoporous Al_2O_3 Monolith Via a Facile Sol-Gel Process Accompanied by Phase-Separation**
K. Zhang[1,2], Z. Fu[1], W. Wang[1], H. Wang[1], T. Nakayama[2], H. Suematsu[2], T. Suzuki[2], K. Niihara[2], L. Soowohn[3]; [1]Wuhan University of Technology, China, [2]Nagaoka University of Technology, Japan, [3]SunMoon University, South Korea

15:30 - 15:45
S2A-004 **Porous Materials Prepared in Methylsilsesquioxane Sol-Gel Systems**
K. Kanamori, Y. Kodera, K. Nakanishi, T. Hanada; Kyoto University, Japan

15:45 - 16:00
S2A-005 **Formation of Bimodal Porous Silica-Titania Monoliths by Sol-Gel Route**
O. N. Ruzimuradov[1], R. Takahashi[2]; [1]National University of Uzbekistan, Uzbekistan, [2]Ehime University, Japan

16:00 - 16:15 **Break**

16:15 - 17:00: Macroporous Materials II

Chair: An-Hui Lu (Dalian University of Technology, China)

16:15 - 16:30
S2A-006 **Sol-Gel Synthesis of Au-nanoparticle Dispersed Bicontinuous Macroporous Siloxane Gel**
Y. Hamada, M. Nishi, Y. Shimotsuma, K. Miura, K. Hirao; Kyoto University, Japan

Symposium 2A

16:30-16:45
S2A-007 **Synthesis Of Functional Porous Carbons Via A Diels-Alder Reaction Based Post-Grafting Method**
H. Kaper[1], F. Goettmann[1], P. Makowski[1], F. Schüth[2]; [1]Centre de Marcoule, France, [2]Max-Planck Institute for Coal Research, Germany

16:45 - 17:00
S2A-008 **An Activation-free Method for Preparing Macroporous Carbon Monoliths with Large Surface Area from Bridged Polysilsesquioxanes**
G. Hasegawa, K. Kanamori, K. Nakanishi; Kyoto University, Japan

17:00 - 17:45: Mesoporous Materials I

Chair: Plinio Innocenzi (University of Sassari, Italy)

17:00 - 17:15
S2A-009 **Towards Bioinspired Materials through Molecular Recognition: Ultimate Description by Ultra High Resolution Solid State Nuclear Magnetic Resonance**
C. Bonhomme[1], F. Babonneau[1], G. Arrachart[2], M. W. C. Man[2]; [1]UPMC, France, [2]Institut Charles Gerhardt, France

17:15 - 17:45
S2A-010 **Perfectly Ordered Silica Nanostructures Converted from Self-assembling Hybrid Polymers (Invited)**
Y. S. Jung; Korea Advanced Institute of Science and Technology, Korea

Tuesday, November 16

Room: 801

9:00 - 10:00: Mesoporous Materials II

Chair: Plinio Innocenzi (Univ of Sassari, Italy)

9:00 - 9:30
S2A-011 **Anisotropic Interfaces for Alignment Control of Mesopores in Mesoporous Silica Films (Invited)**
H. Miyata[1], W. Kubo[1], T. Noma[1], S. Kobori[2], K. Kuroda[2]; [1]Canon Inc., Japan, [2]Waseda University, Japan

9:30 - 9:45
S2A-012 **A Novel Application of Quaternary Ammonium Compounds as Antimicrobial Hybrid Coating on Glass Surfaces**
M. J. Saif, J. Anwar, M. A. Munawar; University of the Punjab, Pakistan

9:45 - 10:00
S2A-013 **Functional Mesoporous Titania and Alumina Films: Controlled Crystallization with Retention of a Highly Ordered Mesostructure**
X. Jiang[1,2], H. Oveisi[1], Y. Yamauchi[1,2,3]; [1]National Institute for Materials Science, Japan, [2]Waseda University, Japan, [3]Japan Science and Technology Agency, Japan

10:00 - 11:15: Hybrids and Nanocomposites I

Chair: Kazumi Kato (AIST, Japan)

10:00 - 10:30
S2A-014 **Inorganic-Organic Hybrids - ORMOCER®s – Multifunctional Materials for Cost Reduction and better Performance of Processing (Invited)**
M. Popall; Fraunhofer Institut für Silicatforschung, Germany

10:30 - 10:45 **Break**

10:45 - 11:15
S2A-015 **Preparation and Structural Characterization of Nanocomposite Aerogels (Invited)**
A. Corrias; Università di Cagliari, Italy

11:15 - 11:45: Mesoporous Materials III

Chair: Christian Bonhomme (UPMC, France)

11:15 - 11:30

S2A-016 **Synthesis of Double Mesoporous Core-Shell Silica Nanospheres with Radially Oriented Mesopores via One Templating Step Using Anionic Surfactant for Potential Drug Control Release Applications**

A. M. El-Toni[1,2], M. W. Khan[1], M. A. Ibrahim[1], M. Al-hoshan[1], M. Al-salhi[1]; [1]King Saud University, Saudi Arabia, [2]CMRDI, Egypt

11:30 - 11:45

S2A-017 **Ecodesign of Mesoporous Silica Materials Using Recyclable Micelles of Hydrosoluble Block Copolymers**

C. Gérardin[1], J. Reboul[1], N. Baccile[1], J. Warnant[1,2], C. Jérôme[2], P. Lacroix-Desmazes[1], M. In[3]; [1]Institut Charles Gerhardt Montpellier, France, [2]University of Liege, Belgique, [3]Université Montpellier 2, France

14:15 - 15:15: Hybrids and Nanocomposites II

Chair: Kazuki Nakanishi (Kyoto University, Japan)

14:15 - 14:45

S2A-018 **Designed Synthesis of Organic-inorganic Hybride Nanoparticles (Invited)**

A.-H. Lu; Dalian University of Technology, China

14:45 - 15:00

S2A-019 **Characterisation and Evolution of Mesoporous Carbon-Hafnium Carbide Composites Synthesized by Novel Sol-Gel Precursor**

C. Ang, T. Williams, H. Wang, Y.-B. Cheng; Monash University, Australia

15:00 - 15:15

S2A-020 **Relationship between Photocatalytic Activity and ESR Ti^{3+} Defects in Anatase-Stabilized Titanium Dioxide**

Y. Ono[1,2], T. Rachi[1], T. Okuda[1], M. Yokouchi[1], Y. Kamimoto[1], A. Nakajima[2], K. Okada[2]; [1]Kanagawa Industrial Technology Center, Japan, [2]Tokyo Institute of Technology, Japan

15:15 - 17:00: Synthesis and Structural Control of Metal Oxides I

Chair: Yeon Sik Jung (KAIST, Korea)

15:15 - 15:30

S2A-021 **Effect of Sr/Ti Ratio on the Photocatalytic Properties of $SrTiO_3$**

U. Sulaeman, S. Yin, T. Sato; Tohoku University, Japan

15:30 - 15:45

S2A-022 **Solvothermal Synthesis of Cesium Tungsten Bronze in the Presence of Various Organic Acids and Its NIR Absorption Properties**

C. Guo[1], Y. Ando[1], S. Yin[1], K. Adachi[2], T. Chonan[2], T. Sato[1]; [1]Tohoku University, Japan, [2]Sumitomo Metal Mining Co., Ltd, Japan

15:45 - 16:00

S2A-023 **Emulsion Assisted Hydrothermal Synthesis of Four Polymorphs of TiO_2 from Water-Soluble Titanium Complexes**

K. Yamamoto[1], K. Tomita[1,2], Y. Miura[1], I. Mikami[1], M. Kakihana[2]; [1]Tokai University, Japan, [2]Tohoku University, Japan

16:00 - 16:15 **Break**

16:15 - 16:30

S2A-024 **Preparation of Zn-Al Layered Double Hydroxide Thin Films Intercalated with Anionic Dyes Having Sulfonic Groups through the Sol-gel Process with Hot Water Treatment**

K. Tadanaga, R. Suezawa, T. Tamura, M. Tatsumisago; Osaka Prefecture University, Japan

Symposium 2A

16:30 - 16:45
S2A-025 **Synthesis of Morphology Controlled Aluminium Oxides by Hydrothermal Reaction**
L. Yang, S. Yin, T. Sato; Tohoku University, Japan

16:45 - 17:00
S2A-026 **Effect of Core-Shell Structure on Catalytic Activities of Silica-Aluminosilicate Composites in deNO_x reaction by H_2**
B. Chamnankid, M. Chareonpanich, P. Kongkachuichay; Kasetsart University, Thailand

17:00 - 18:00: Nanocrystals

Chair: Michael Popall (Fraunhofer-Institut fuer Silicatforschung, Germany)

17:00 - 17:30
S2A-027 **Nanocrystalline Organosilicates through Self-Organization in Organic-Inorganic Hybrid Materials (Invited)**
P. Innocenzi[1], C. Figus[1], M. Takahashi[2]; [1]Università di Sassari and CR-INSTM, Italy, [2]Osaka Prefecture University, Japan

17:30 - 17:45
S2A-028 **Preparation of Shape-controlled CeO_2 Nanocrystals**
F. Dang[1], K. Kato[1], H. Imai[2], S. Wada[3], H. Haneda[4], M. Kuwabara[5]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Keio University, Japan, [3]Yamanashi University, Japan, [4]National Institute for Materials Science, Japan, [5]Kyushu University, Japan

17:45 - 18:00
S2A-029 **Sol-Gel Synthesis and Oxygen Storage Properties of Ceria-Zirconia Nanocrystals with Extended Persistence of the Cubic Phase**
M. Epifani[1], T. Andreu[2,3], S. Abdollahzadeh-Ghom[3], J. Arbiol[4], J. R. Morante[2,3]; [1]CNR-IMM, Italy, [2]Institut de Recerca en Energia de Catalunya, Spain, [3]Universitat de Barcelona, Spain, [4]CSIC, Spain

Wednesday, November 17

Room: 801

9:00 - 10:30: Synthesis and Structural Control of Metal Oxides II

Chair: Quanxi Jia (Los Alamos National Laboratory, USA)

9:00 - 9:15
S2A-030 **Dependence of Crystal Structures and Dielectric and Piezoelectric Properties on Synthetic Process for $BaTiO_3$ Prepared by Liquid Phase Reactions**
M. Tashiro, N. Kitamura, Y. Idemoto; Tokyo University of Science, Japan

9:15 - 9:30
S2A-031 **Effect of Citric Acid Content on The Formation of $Ba(Zn_{1/3}Nb_{2/3})O_3$ Powders from Aqueous Solutions of Metal Salts**
M. Ayhan, S. Duygu; Marmara University Göztepe Campus, Turkey

9:30 - 9:45
S2A-032 **One-step, Low-temperature, Microwave-assisted Synthesis of Barium Titanate Nano-crystalline Powders**
S. A. Veldhuis, T. M. Stawski, O. F. Göbel, J. E. ten Elshof, D. H. A. Blank; University of Twente, The Netherlands

9:45 - 10:00
S2A-033 **Soft Chemistry Preparation of New Triclinic Lead Iron Vanadate**
K. Melghit; Sultan Qaboos University, Oman

10:00 - 10:15
S2A-034 **Pursuing Low-density ZnO Powder *via* Rapid Combustion of the Metallo-Organic Gel of Zinc Ion**
S. Ming[1], L. Hong[1,2], S. W. Tay[2], L. Yang[1]; [1]National University of Singapore, Singapore, [2]Institute of Materials Research and Engineering, Singapore

10:15 - 10:30
S2A-035 **Synthesis of Ultra Dispersed Metal Oxides for Novel Ceramic Materials by Wet Methods**
E. A. Trusova, K. V. Vokhmintsev, I. V. Zagainov; Institution of Russian Academy of Science A.A., Russia

10:30 - 10:45 **Break**

10:45 - 11:45: Synthesis and Structural Control of Metal Oxides III

Chair: Kiyoharu Tadanaga (Osaka Prefecture University, Japan)

10:45 - 11:00
S2A-036 **Cubic Stabilized Zirconia Nanoparticles Obtained through the Pyrosol Method**
B. S. Vasile, C. Ghitulica, E. Andronescu, E. Dinu, O. R. Vasile; University POLITEHNICA of Bucharest, Romania, 2Metav C.D., Romania

11:00 - 11:15
S2A-037 **Iron Oxide and Ferrite Hollow Structures with Controllable Interior Architectures Prepared by Heterogeneous Contraction and Their Magnetic Properties**
F. Mou, J. Guan, Z. Fu; Wuhan University of Technology, China

11:15 - 11:30
S2A-038 **Morphology Control of Metal Oxide Nanostructures by Electrochemical Deposition**
D. Chu, Y. Masuda, T. Ohji, K. Kato; National Institute of Advanced Industrial Science and Technology, Japan

11:30 - 11:45
S2A-039 **The Synthesis of Sol-Gel Titanium Dioxide (TiO_2) Powder for Cold Spray Process**
N. T. Salim, M. Yamada, H. Nakano, M. Fukumoto; Toyohashi University of Technology, Japan

13:15 - 15:00: Thin Films and Coatings

Chair: Hiromitsu Kozuka (Kansai University, Japan)

13:15 - 13:45
S2A-040 **Control of Microstructure and Properties of Chemical Solution Deposition Derived Electronic Ceramic Thin Films (Invited)**
T. Schneller; RWTH Aachen, Germany

13:45 - 14:15
S2A-041 **Growth and Characterization of Thin Film Electronic Ceramic Materials by Polymer Assisted Deposition (Invited)**
Q. X. Jia[1], H. M. Luo[1], G. F. Zou[1], A. K. Burrell[1], T. M. McCleskey[1], E. Bauer[1], H. Wang[2]; [1]Los Almaos National Laboratory, USA, [2]Texas A&M University, USA

14:15 - 14:30
S2A-042 **Sol-gel Synthesis and Characterization of $Na_{0.5}Bi_{0.5}TiO_3$–$NaTaO_3$ Thin Films**
S. Kunej, A. Veber, D. Suvorov; Jožef Stefan Institute, Slovenia

14:30 - 14:45
S2A-043 **Densification of Spin-on-glass (SOG) Film by RF Plasma Treatment**
T. Yoshida, M. Nagao, H. Ohsaki, T. Shimizu, S. Kanemaru; National Institute of Advanced Industrial Science and Technology, Japan

14:45 - 15:00
S2A-044 **Direct Photopatterning of Metal Oxide Film with Surface-modified Nanoparticles**
A. Nakamura, M. Jimbo, M. Shimo, C. E. J. Cordonier, A. Fujishima; Central Japan Railway Company, Japan

Symposium 2A

15:15 - 16:15: Thin Films and Fibers

Chair: Byeong-Soo Bae (KAIST, Korea)

15:15 - 15:30

S2A-045 **Spontaneous Formation of Linear Striations and Cell-like Patterns on Alkoxide-derived Titania Films During Dip-coating**
H. Uchiyama, W. Namba, H. Kozuka; Kansai University, Japan

15:30 - 15:45

S2A-046 **Phase Separation of $(C_6H_5)SiO_{3/2}$-SiO_2 Films on Polycarbonate Substrate Utilizing Π-electron Interaction**
Y. Mizuta, Y. Daiko, M. Kobune, A. Minesige, T. Yazawa; University of Hyogo, Japan

15:45 - 16:00

S2A-047 **Processing for Sol-gel Derived Metal Oxide Thin Films Using Supercritical Carbon Dioxide Fluid**
H. Uchida, Y. Asai, S. Narishige, K. Fujioka, S. Koda; Sophia University, Japan

16:00 - 16:15

S2A-048 **Morphology-tunable Strongly Emitting Fibers Self-assembled from Silica-coated CdTe QDs**
N. Murase[1,2], P. Yang[1,2], M. Ando[1,2], K. Kawasaki[1,2], T. Kato[1], C. Hosokawa[1,2], T. Taguchi[1,2]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Core Research for Evolutional Science and Technology

Poster Session

Monday, November 15

Room: Event Hall

12:00 -14:00

S2A-P001 **Manufacturing of High-hardness Alumina for Abrasive Materials through Eutectoid Reaction Using the Sol-gel Method**
J.-H. Pee[1], E.-Y. Park[1], W.-S. Cho[1], K.-J. Kim[1], J. K. Lee[2]; [1]KICET, Korea, [2]DaeHan Ceramics Co., Ltd,. Korea

S2A-P002 **Sol-gel Synthesis of Nanocrystalline LaF_3 Doped Monolithic Silica Glasses from Solutions Containing Hydrofluoric Acid**
S. Nagayama, K. Kajihara, K. Kanamura; Tokyo Metropolitan University, Japan

S2A-P003 **Fabrication and Characterization of Fe Doped SiO_2 Composite Membranes by a Reverse Micelle and Sol-Gel Processing**
M. Y. Lee[1], J. H. Son[1], K. H. Hwang[2], D. S. Bae[1]; [1]Changwon National University, Korea, [2]Gyeongsang National Univ., Korea

S2A-P004 **Synthesis of Borate Compounds by New Polyamide-type Polymerizable Complex Method**
Y. Matsumoto[1], K. Tomita[1,2], Y. Sekine[1], M. Kakihana[2]; [1]Tokai University, Japan, [2]Tohoku Universiry, Japan

S2A-P005 **Synthesis and Piezoelectric Properties Nd_2O_3–doped $BaTiO_3$–$Bi_{0.5}(Na, K)_{0.5}TiO_3$ by a Novel Composite-hydroxide-mediated Approach**
T. Kimura[1], S. Yin[1], T. Hashimoto[2], Y. Tokano[2], A. Sasaki[2], T. Sato[1]; [1]Tohoku University, Japan, [2]NEC Tokin Co., Japan

S2A-P006 **Electrospinning and Conductivity of Ga-Doped ZnO Nanofibers**
Y. Shmueli, G. E. Shter, O. Assad, M. Mann-Lahav, G. S. Grader; Israel Institute of Technology, Israel

S2A-P007 **Low-temperature Preparation of ITO from the Aqueous Solution Containing New Indium Complex**
O. Yamamoto[1], M. Hagiwara[2], S. Shiraishi[2]; [1]Akita University, Japan, [2]Mitsubishi Materials Electric Chemicals Co.,Japan

S2A-P008 Influence on NIR Shielding Property by Morphology and Chemical Composition of Cs_xWO_3
Y. Ando[1], C. Guo[1], S. Yin[1], T. Sato[1], K. Adachi[2], T. Chonan[2]; [1]Tohoku University, Japan, [2]Sumitomo Metal Mining Co., Japan

S2A-P009 Slip Casting of α-Sialon/AlN/BN Powder Carbothermally Prepared by Boron-rich Slag-based Mixture
J. Wu, T. Jiang, X. Xue; Northeastern University, China

S2A-P010 Synthesis of Some Calcium Phosphate Crystals Using the Useful Biomass for Immobilization of Microorganisms
T. Kohiruimaki; Hachinohe Institute of Technology, Japan

S2A-P011 Influence of the Various Factors on Sol-Gel Process of Obtaining Nanocomposite Aminofunctional Sorbtion Materials
D. S. Shakarova[1], N. Hüsing[2]; [1]Tashkent State Technical University, Uzbekistan, [2]Ulm University, Germany

S2A-P012 Gallium Substituted Bismuth Iron Garnet Prepared by MOD Technique for the Magneto-optical Imaging
N. Adachi[1,2], K. Yogo[1], T. Ota[1], M. Takahashi[2,3], K. Ishiyama[2]; [1]Nagoya Intitute of Technology, Japan, [2]Tohoku University, Japan, [3]Taiyo Yuden Co., Ltd, Japan

S2A-P013 New Water-based Sol-gel Process for the Synthesis of Silicate Lanthanum Using Na_2SiO_3 Solution as Source of Silica
C. Yamagata[1], S. R. H. Mello Castanho[1], N. B. Lima[1], J. R. Matos[2]; [1]Instituto de Pesquisas Energeticas e Nucleares, Brazil, [2]Instituto de Quimica-Universidade de Sao Paulo, Brazil

S2A-P014 Magnetic Properties of TCr_2O_4 (T = Co, Ni) Fine Powders and $TCr_2O_{4/}SiO_2$ Nanocomposites
A. Mantlíková, J. P. Vejpravová, P. Holec, J. Plocek, D. Nižňanský; Charles University, Czech Republic

S2A-P015 Hydrothermal Synthesis and Crystal Structure of Ionic Conductive Metal Tungstates
R. F. Shimanouchi, T. Tsuji, R. Yagi, Y. Matsumoto, H. Nishizawa; Kochi University, Japan

S2A-P016 Structural and Property of Barium Titanate Ceramic Prepared from the Sol-Gel Derived Powders
R. Roongtao[1], S. Rugmai[2], W. C. Vittayakorn[1]; [1]Chiang Mai University, Thailand, [2]National Synchrotron Research Center, Thailand

S2A-P017 ACr_2O_4/SiO_2 (A = Zn, Cu, Cd) Nanocomposites, Their Preparation and Physical Properties
P. Holec[1,2], J. P. Vejpravová[2], J. Plocek[1], I. Nemec[2], D. Niznanský[1,2]; [1]Institute of Inorganic Chemistry of the ASCR, Czech republic, [2]Charles University, Czech Republic

S2A-P018 Development of Polyimide Surface Modification Processes for Sol-Gel Coating of Metal Oxides Thereon
M. Hirashima, M. Hashizume; Tokyo University of Science, Japan

S2A-P019 Synthesis and Characterization of Soluble Salts for Tile Decoration
B. Salari[1], M. Montazerian[1], S. Baghshahi[2]; [1]Apadana Ceram Company, Iran, [2]Imam Khomeini International University, Iran

S2A-P020 Properties of Siliceous Film on Polycarbonate Substrate by Vacuum Ultraviolet Irradiation
S. Tsukakoshi, K. Itatani, S. Koda; Sophia University, Japan

S2A-P021 Variation of In-plane Stress in Alkoxide-derived YSZ Precursor Gel Films During a Crystallization Process
K. Ohno, H. Kozuka, H. Uchiyama; Kansai University, Japan

S2A-P022 Growth Condition of CeO_2 Thin Films Grown on Glass Substrate from Aqueous Solution and their Optical Property
A. Saiki, C. Kawai, T. Hashizume, K. Terayama; University of Toyama, Japan

S2A-P023 Photoelectroless Deposition of Oxide Semiconductor Thin Films
K. Kamada; Nagasaki University, Japan

Symposium 2A

S2A-P024 Perfect Uniaxial Oriented Growth of $RbLaNb_2O_7$ Thin Films on Amorphous Substrates under Pulsed Laser Irradiation and the Seed Layer Property
T. Nakajima, T. Tsuchiya, T. Kumagai; National Institute of Advanced Industrial Science and Technology, Japan

S2A-P025 Evaluation of Photocatalytic Activity of Ta_2O_5 Films Prepared by Sol-Gel Method
K. Otoizumi[1], C. Yogi[1], N. Wada[2], K. Kojima[1]; [1]Ritsumeikan University, Japan, [2]Suzuka National College of Technology, Japan

S2A-P026 Preparation of PZT Thin Films with Preferred Orientation along (001)/(100) Plane from PVP-containing Solution and their Dielectric Properties
T. Hirano, A. Yamano, H. Uchiyama, H. Kozuka; Kansai University, Japan

S2A-P027 Ceramic Coating Deposition in Aqueous Solutions: Improvement of Chemical Durability of E-Glass Fibers
M. Takahashi[1], M. Ohsawa[2], K. Nakamura[2], H. Unuma[1]; [1]Yamagata University, Japan, [2]Nitto Boseki Co. Ltd.,Japan

S2A-P028 Preparation and Microstructural Study of Sol-gel 8YSZ Thin Films for SOFCs Applications
N. Mirkazemi[1], A. Maghsoudipur[2], M. Tamizifar[3], S. Baghshahi[4]; [1]Science &Research Campus Islamic Azad University, Iran, [2]Materials & Energy Research Center, Iran, [3]Iran University of Science &Technology, Iran, [4]Imam Khomeini International University, Iran

S2A-P029 Hydrothermal Soft Chemical Synthesis of TiO_2 Nanocrystals from Layered Titanate $H_2Ti_3O_7$ Nanosheets
Y. Ikeuchi, Y. Ishikawa, Q. Feng; Kagawa University, Japan

S2A-P030 Environmentally Friendly Growth of Layered Alkali Titanate Crystals for Water Purifier
M. Kiyohara[1], K. Teshima[1], H. Kamikawa[2], S. H. Lee[1], S. Oishi[1]; [1]Shinshu University, Japan, [2]YAMAHA MOTOR CO., LTD., Japan

S2A-P031 Preparation of Cellulose Nanofibers-Silica Laminate Hybrid Films for Transparent Gas-Barrier Coatings
K. Aoyama[1], K. Katagiri[1], K. Koumoto[1], H. Fukuzumi[2], T. Saito[2], A. Isogai[2]; [1]Nagoya University, Japan, [2]The University of Tokyo, Japan

S2A-P032 Preparation and Properties of Sol-Gel Thin Film Containing Quinacridone Latent Pigment by Using Laser Irradiation
T. Ohishi; Shibaura Institute of Technology, Japan

S2A-P033 Preparation of Mesostructured Titania Films with Uniaxially Aligned Cylindrical Micelles Using Titanium Alkoxides as a Titania Source
Y. Fukushima[1], Y. Kanno[1], H. Miyata[2], K. Kuroda[1]; [1]Waseda University, Japan, [2]Canon Inc., Japan

S2A-P034 Preparation and Hydrophilization of Alumina Films using Fibrous Sols with a High Aspect Ratio
K. Hashimoto[1], M. Shinmura[1], T. Nishide[1], N. Nagai[2], Y. Hakuta[3], F. Mizukami[3]; [1]Nihon University, Japan, [2]Kawaken Fine Chemicals Co., Ltd., Japan, [3]National Institute of Advanced Industrial Science and Technology, Japan

S2A-P035 Photoluminescence Properties of Red-emitting $(Y_{0.5}Gd_{0.5})(V_{1-x}P_x)O_4$:Eu Phosphors Synthesized by Solution Combustion Method
M. H. Heo[1], Y. Kim[2], K. Park[1]; [1]Sejong University, Korea, [2]Dankook University, Korea

S2A-P036 Preparation of Ce^{3+}-Doped $(Y, Gd)_3Al_5O_{12}$ Nanophosphors by Environmentally Friendly Method
M. Imamura, Y. Matsui, E. Deguchi, H. Horikawa, M. Iwasaki; Kinki University, Japan

S2A-P037 Characterization of Manganese-doped Willemite Green Phosphor Gel Powders
M.-T. Tsai[1], Y.-F. Lu[2], P.-J. Tsai[2], J.-M. Wu[1]; [1]National Formosa University, Taiwan, [2]National Chung Hsing University, Taiwan

S2A-P038 Preparation of La $(Nb,Ta)O_4$ Nanophosphors by Environmentally Friendly Method
T. Maekawa, Y. Matsui, E. Deguchi, H. Horikawa, M. Iwasaki; Kinki University, Japan

S2A-P039 Photoluminescence of Titanium-Doped Zinc Orthosilicate Phosphor Gel Films
M.-T. Tsai[1], F.-H. Lu[2], J.-M. Wu[1], Y.-K. Wang[2]; [1]National Formosa University, Taiwan, [2]National Chung Hsing University, Taiwan

S2A-P040 Synthesis and Photoluminescence Properties of Al-O Ceramics Obtained by a Sol-Gel Method
K. Arita[1], N. Sawaguchi[1], H. Inano[2], M. Sasaki[1]; [1]Muroran Institute of Technology, Japan, [2]Hokkaido Research Organization / Industrial Research Institute, Japan

S2A-P041 Photoluminescence Properties of $(Y_{0.5}Gd_{0.5})_{0.94-x}M_x(V_{0.25}P_{0.75})O_4:Eu_{0.06}$ (M = Al, Bi, Li, Ni, and Zn) Phosphors Synthesized by Solution Combustion Method under VUV Excitation
M. H. Heo, K. Park; Sejong University, Korea

S2A-P042 Preparation of Yb^{3+} Doped $GdPO_4$ Nanoparticles by Solution-Based Processing
T. Shimizu, T. Isobe; Keio University, Japan

S2A-P043 Photoluminescence Characteristics of Red-emitting $Gd_{0.94}(P_{1-X}V_X)O_4:Eu_{0.06}$ ($0 \le x \le 1.0$) Phosphors Synthesized by Ultrasonic Spray Pyrolysis under VUV Excitation
K. Y. Kim[1], M. H. Heo[1], Y. Kim[2], K. Park[1]; [1]Sejong University, Korea, [2]Dankook University, Korea

S2A-P044 Study on Luminescence Properties of $BaAl_{12}O_{19}$:Tb,Dy Phosphor Prepared by Sol-gel Method
Y. Xie[1], L. Xiao[1], M. He[2], W. Yu[1]; [1]Shenyang University of Chemical Technology, China, [2]Shenyang Supervision and Inspection Institute for Product Quality, China

S2A-P045 Preparation of Titania Spheres via Hydrolysis of Chemically Odified Alkoxides under Solvothermal Condition
K. Matsumoto, H. Uchiyama, H. Kozuka; Kansai University, Japan

S2A-P046 Synthesis and Characterization of SnO_2 Powders by Solvothermal Process
D. H. Lee[1], M. C. Chu[2], D. S. Bae[1]; [1]Changwon National University, Korea, [2]Korea Resarch Institute of Standards and Science, Korea

S2A-P047 Synthesis of Stable Sol of TiO_2 Nanoparticles by Heating Ti Alkoxide in NH_3 Solution and Characterization of Their Surface Properties
N. Uekawa, Y. Aoki, N. Endo, T. Kojima, K. Kakegawa; Chiba University, Japan

S2A-P048 Effect of the Strontium Sulfate Grade on the Conversion of Celestite to Fine $SrTiO_3$ Powders Prepared by Hydrothermal Alkaline Conditions
J. C. Rendón-Angeles[1], Z. Matamoros-Veloza[2,3], K. Yanagisawa[3], M. I. Pech-Canul[1], Y. M. Rangel-Hernandez[1]; [1]Research Institute for Advanced Studies, Mexico, [2]Technological Institute of Saltillo, Mexico, [3]Kochi University, Japan

S2A-P049 Preparation of Porous Titania Particles by Partial Dissolution of Hydrous Titania
T. Kojima, T. Baba, N. Uekawa, K. Kakegawa; Chiba University, Japan

S2A-P050 Hydrothermal Synthesis of Iron Oxide Particles with Controllable Shape and Size
Q. Dong, N. Kumada, T. Takei, Y. Yonesaki, N. Kinomura; University of Yamanashi, Japan

S2A-P051 A Facile Low Temperature Synthesis of Nanostructured Silica Powders From Na_2SiO_3 Solution
C. Yamagata[1], S. R. H. Mello Castanho[1], J. R. Matos[2]; [1]Instituto de Pesquisas Energeticas e Nucleares, Brazil, [2]Instituto de Quimica-Universidade de Sao Paulo, Brazil

S2A-P052 In-Situ Template-Free Synthesis of Organosilica Nanocapsules
K. Hayashi, M. Nakamura, K. Ishimura; The University of Tokushima, Japan

S2A-P053 Solution-Based Preparation of Mesoporous Silicates
E. A. Trusova, A. E. Chalich; Institution of Russian Academy of Science A.A., Russia

S2A-P054 Aqueous Solution Synthesis of Amorphous Opal Structures Consisting of SnO_2 Nanocrystals
T. Anzai, Y. Oaki, H. Imai; Keio University, Japan

Symposium 2A

S2A-P055 Preparation and Characterization of Alpha Alumina Nanoparticles Produced by Sol-Gel Method
E. Andronescu, B. S. Vasile, C. Ghitulica, G. Pall, G. Voicu, M. Birsan; University POLITEHNICA of Bucharest, Romania

S2A-P056 Synthesis and Characterization of Stable Sol of Cation Doped ZnS Nanoparticles Obtained by Peptization of Sulfide Precipitate
T. Matsumoto, N. Uekawa, T. Kojima, K. Kakegawa; Chiba University, Japan

S2A-P057 Colloidal Silver Inks for Rollerball Pen Writing of Electronic Devices on Flexible Substrates
A. Russo, B. Y. Ahn, J. A. Lewis; University of Illinois, USA

S2A-P058 Room Temperature Synthesis of Magnetite Nanoparticles by a Simple Reverse Co-precipitation Method
N. Mahmed[1], O. Heczko[2], O. Söderberg[1], S-P. Hannula[1]; [1]Aalto University School of Science and Technology, Finland, [2]Academy of Sciences, Czech Republic

S2A-P059 Synthesis of Porous Calcium Phosphate Via the Sol-Gel Process from Ionic Precursors
A. Miyasaka, Y. Tokudome, K. Nakanishi, K. Kanamori, T. Hanada; Kyoto University, Japan

S2A-P060 General Synthesis of PS-*b*-PEO Templated Macroporous Semiconducting Oxides
D. Chandra, T. Ohji, K. Kato, T. Kimura; National Institute of Advanced Industrial Science and Technology, Japan

S2A-P061 (3-Mercaptopropyl)Trimethoxysilane-derived Porous Gel Monolith via Thioacetal Reaction-Assisted Sol-Gel Route
S. Ito, M. Nishi, K. Kanamori, K. Nakanishi, Y. Shimotsuma, K. Miura, K. Hirao; Kyoto University, Japan

S2A-P062 Effects of Starting Compositions on the Properties of Methylsilsesquioxane Aerogels
G. Hayase, K. Kanamori, K. Nakanishi, T. Hanada; Kyoto University, Japan

S2A-P063 Preparation of Macroporous Silica Monolith with Mesocellular Foam-Type Mesopores
K. Maeda, K. Nakanishi, K. Kanamori, T. Hanada; Kyoto University, Japan

Symposium 2B: Novel Chemical Processing; Molecular Routes to Ceramics and Ceramics-based Materials

Main Organizers
- Takamasa Ishigaki, Hosei University, Japan
- Yoshiyuki Sugahara, Waseda University, Japan
- Ya-li Li, Tianjin University, China

Co-Organizers
- Jun-ichi Hojo, Kyushu University, Japan
- Yuji Iwamoto, Nagoya Institute of Technology, Japan
- Younghee Kim, Korea Institute of Ceramic Engineering and Technology, Korea
- Philippe Miele, Université Claude Bernard Lyon 1, France
- Ralf Riedel, Technische Universität Darmstadt, Germany

This symposium is supported by Committee of the Functional Composite Materials in Japan Society of Powder and Powder Metallurgy.

Oral Session

Wednesday, November 17

Room: 802

9:00 - 10:30

Chairs: Richard Laine (University of Michigan, USA) and
Younghee Kim (Korea Institute of Ceramic Engineering and Technology, Korea)

9:00 - 9:30
S2B-001 **Laser Ablation in Liquid: From Nanocrystals Synthesis to Nanostructures Fabrication (Invited)**
P. Liu, X. Z. Lin, J. M. Yu, G. W. Yang; Sun Yat-sen University, China

9:30 - 10:00
S2B-002 **Chemical Approaches to Functional Nanostructures: Growth, Applications and Devices (Invited)**
S. Mathur; University of Cologne, Germany

10:00 - 10:30
S2B-003 **Design and Construction of Complex Nanostructured Coatings by Bottom-up Approaches (Invited)**
D. Grosso; Collège de France, France

10:30 - 10:45 **Break**

10:45 - 12:30

Chairs: David Grosso (Universite Pierre et Marie Curie, France) and Takamasa Ishigaki (Hosei University, Japan)

10:45 - 11:15
S2B-004 **Advances in Liquid-Feed Flame Spray Pyrolysis: Innovative Approaches to Nano-scale Oxide Materials (Invited)**
R. M. Laine, M. Kim, T. Shyu, N. Taylor, B. Glesner; University of Michigan, USA

11:15 - 11:30
S2B-005 **Influence of High-Concentration Niobium (V) Doping into Plasma-Synthesized TiO_2 Nano-Size Powders**
C.-N. Zhang[1,2], M. Ikeda[1,3], T. Uchikoshi[1], J.-G. Li[1], T. Watanabe[2], T. Ishigaki[1,3]; [1]National Institute for Materials Science, Japan, [2]Tokyo Institute of Technology, Japan, [3]Hosei University, Japan

11:30 - 11:45
S2B-006 **Color Switching in Si-based Nitride Nanocomposites Prepared by Molecular Route**
M. Bechelany, S. Bernard, J. Li, P. Miele; Université Lyon 1, France

Symposium 2B

11:45 - 12:00

S2B-007 **Generallized Wet-Chemical Processing of Phosphor Monospheres and the Compositional Impacts on Photoluminescence**

J.-G. Li[1], X. Sun[2], T. Ishigaki[1]; [1]National Institute for Materials Science, Japan, [2]Northeastern University, China

12:00 - 12:15

S2B-008 **Organic-to-Inorganic Conversion in High Pressure and Temperature for C-N Inorganic Compounds**

M. Hasegawa[1], K. Niwa[1], Y. Jin, T. Tanaka, K. Kusaba[1], T. Yagi[2]; [1]Nagoya Univ., Japan, [2]Univ. of Tokyo, Japan

12:15 - 12:30

S2B-009 **Large Amount of Centimeters Long SiC Nanowires Synthesized by a Polymer Pyrolysis Chemical Vapor Deposition Route**

G. Li, X. Li, Y. Li; National University of Defense Technology, China

13:15 - 15:00

Chairs: Dong-pyo Kim (National Creative Research Center of Applied Microfluidic Chemistry, Korea) and Sanjay Mathur (University of Cologne, Germany)

13:15 - 13:45

S2B-010 **Nanoscaled Ceramics by Molecular Design: New Materials for Advanced Technologies (Invited)**

E. Lonescu; Technische Universitaet Darmstadt, Germany

13:45 - 14:15

S2B-011 **Molecular Routes to Si and B-based Ceramic (Nano)Fibers: Polymer Synthesis, Melt-/ ElectroSpinning and Polymer-to-ceramic Conversion (Invited)**

S. Bernard[1], L. Gottardo[1], T. Ouyang[1,2], V. Salles[1], C. Balan[2], P. Miele[1]; [1]Université Lyon 1, France, [2]University of Bucharest, Romania

14:15 - 14:30

S2B-012 **The Visualization of Atomic Scale Structure of Polymer-derived Si-C-O Amorphous Fibers by High-energy X-ray Diffraction and Reverse Monte Carlo Modelling**

K. Suzuya[1], S. Kohara[2], K. Okamura[3], H. Ichikawa[4], K. Suzuki[5]; [1]Japan Atomic Energy Agency, Japan, [2]Japan Synchrotron Radiation Research Institute, Japan, [3]Japan Ultra-High Temperature Research Institute, Japan, [4]Nippon Carbon Co., Ltd., Japan, [5]Advanced Institute of Materials Science, Japan

14:30 - 15:00

S2B-013 **Nano Structured SiOC Low K Thin Film Derived from Polycarbosilane (Invited)**

Y. Kim, S.-R. Kim, J.-J. Kim, J.-H. Lee, Y.-J. Lee; Korea Institute of Ceramic Engineering and Technology, Korea

15:00 - 15:15 **Break**

15:15 - 17:30

Chairs: Emanuel Lonescu (TU Darmstadt, Germany) and Ya-li Li (Tianjin University, China)

15:15 - 15:45

S2B-014 **Novel Metal@SiCN Ceramics Via Molecular Approach for Catalytic Applications (Invited)**

G. Motz; University of Bayreuth, Germany

15:45 - 16:15

S2B-015 **Silicon Polymer Derived Lab-on-a-Chip Systems for Microchemical Synthetic Applications (Invited)**

D.-P. Kim; Chungnam National University, Korea

16:15 - 16:30

S2B-016 **Templated Silicon Oxycarbide Spherical Particles and Thin Films with Controlled Porosity**

L. Malfatti, A. Pauletti, C. Boissière, C. Gervais, F. Babonneau; Collège de France, France

16:30 - 16:45

S2B-017 **Synthesis and Characterization of Novel Materials Based on Si-Hf-C-(N)-O through Molecular Precursors**

R. Kumar, R. Sujith, A. B. Kousaalya; Indian Institute of Technology-Madras, India

16:45 - 17:15
S2B-018 **Fabrication of PDCs with Tailored Structures from Liquid Precursors via Forming and Pyrolysis (Invited)**
F. Hou, Y. Li, X. Liu, H. An, T. Liang, J. Xie, Y. Zhang; Tianjin University, China

17:15 - 17:30
S2B-019 **Phase-separation at Nano-scale in Amorphous Si-(B-)C-N Structures Derived from Polymer-precursors: an AEM Study**
H. Gu; Chinese Academy of Sciences, China

Thursday, November 18

Room: 802

9:00 - 10:30

Chairs: Hubert Mutin (Institut Charles Gerhardt Montpellier, France) and Yoshiyuki Sugahara (Waseda University, Japan)

9:00 - 9:30
S2B-020 **Polysilsesquioxane-type Gate Insulating Materials for Organic-TFT (Invited)**
K. Matsukawa[1], T. Hamada[2], M. Watanabe[1], S. Watase[1], T. Nagase[3], T. Kobayashi[3], H. Naito[3]; [1]Osaka Municipal Technical Research Institute, Japan, [2]Japan Science and Technology Agency, Japan, [3]Osaka Prefecture University, Japan

9:30 - 10:00
S2B-021 **Photo-Curable Organo-Oligosioxane Derived Optical Hybrid Materials and Their Applications (Invited)**
B.-S. Bae, S. C. Yang, J.-S. Kim; Korea Advanced Institute of Science and Technology, Korea

10:00 - 10:30
S2B-022 **Perhydropolysilazane-Derived Silica and Organic-Inorganic Hybrid Thin Films (Invited)**
H. Kozuka, A. Yamano, H. Uchiyama, T. Kawamura, M. Fujita; Kansai University, Japan

10:30 - 10:45 **Break**

10:45 - 12:00

Chairs: Hiromitsu Kozuka (Kansai University, Japan) and Byeong-Soo Bae (KAIST, Korea)

10:45 - 11:15
S2B-023 **Nonhydrolytic Processing of Oxides: From Nanoparticles to Films, Mesoporous Xerogels and Foams (Invited)**
P. H. Mutin, B. Boury, A. Vioux; Université Montpellier 2, France

11:15 - 11:30
S2B-024 **Synthesis of Discrete Alkoxysiloxane Oligomers by Non-hydrolytic Hetero-condensation**
R. Wakabayashi, K. Kawahara, K. Kuroda; Waseda University, Japan

11:30 - 11:45
S2B-025 **Inorganic Molten-Salts Synthesis of Organic-Inorganic Intercallation Compounds and their Conversion Into Oxide and Non-Oxide Ceramics**
F. Goettmann, P. Makowski, A. Grandjean, A. Laplace; Centre de Marcoule, France

11:45 - 12:00
S2B-026 **Solid State NMR Characterization of Ceramics from Molecular Routes : Combined Experimental and *Ab-initio* Investigations**
C. Gervais, F. Babonneau, F. Mauri; UPMC Univ Paris 06, France

Symposium 2B

13:15 - 15:00

Chairs: Masaki Narisawa (Osaka Prefecture University, Japan) and
Philippe Miele (Institut Européen des Membrances de Montpellier, France)

13:15 - 13:45
S2B-027 **Spherical Oxide Particles with Various Porous Structures by Microwave-Emulsion Processes (Invited)**
J. Hojo, L. Li, M. Inada, N. Enomoto; Kyushu University, Japan

13:45 - 14:00
S2B-028 **Synthesis of Plate-like Zinc Oxide Particles by the Transcription of Precursor's Shape**
S. Yin[1], F. Gobo[1], T. Goto[1,2], T. Long[1,3], T. Sato[1]; [1]Tohoku University, Japan, [2]Daito Kasei Kogyo Co.,Ltd , Japan, [3]Guangxi Normal University, China

14:00 - 14:15
S2B-029 **Formation Mechanism of ZnO Nanoscrew via Homogeneous Precipitation**
N. Enomoto, J. Kimura, M. Inada, J. Hojo; Kyushu University, Japan

14:15 - 14:45
S2B-030 **Advanced Ceramics from Preceramic Polymers and Nano-sized Fillers (Invited)**
P. Colombo, E. Bernardo; University of Padova, Italy

14:45 - 15:00
S2B-031 **Mechanical Properties and Chemical Vapor Infiltration Fabrication of SiC Whisker Reinforced SiC Ceramic Layered Composites**
Y. Xie, L. Cheng, L. Li, H. Mei, L. Zhang; Northwestern Polytechnical University, China

15:00 - 15:15 **Break**

15:15 - 16:45

Chairs: Junichi Hojo (Kyushu University, Japan) and Feng Hou (Tianjin University, China)

15:15 - 15:45
S2B-032 **Microstructure of SiC-Si-Al_2O_3 Composites Derived from Silicone Resin - Metal Aluminum Filler Compounds by Low Temperature Reduction Process (Invited)**
M. Narisawa, Y. Abe, W. Isihara, H. Kado; Osaka Prefecture University, Japan

15:45 - 16:15
S2B-033 **Metal-organic Precursors-derived Ceramic Membranes for Gas Separation (Invited)**
Y. Iwamoto; Nagoya Institute of Technology, Japan

16:30 - 16:45
S2B-034 **Surface Strengthen And Oxidation Resistance Improvement of SiC-graphite Composites by SiC Coating**
W. Yang, Z. Jin, G. Qiao, Z. Shi, H. Li; Xi'an Jiaotong University, China

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 -14:00

S2B-P001 **Metal Oxide Films Deposited by Combined Process of the Acetylene Thermal Spray and Metal Organic CVD**
M. Ohoto[1], Y. Hasebe[1], A. Nakamura[1,2], S. Ohshio[1], H. Akasaka[1], H. Saitoh[1]; [1]Nagaoka Univ. Tech., Japan, [2]Chubu Chelest Co., Ltd, Japan

S2B-P002 **High Pressure Synthesis of Cubic Silicon Nitride from a Silazane Precursor**
Y. Yamamoto[1], H. Yokota[1], T. Kobayashi[2], T. Taniguchi[2], T. Sekine[2], Y. Sugahara[1]; [1]Waseda University, Japan, [2]National Institute for Materials Science, Japan

S2B-P003 **The SH – Synthesis of Ceramics Based on Titanium Carbide and Silicon Carbide Composite Materials**
Z. A. Mansurov, I. M. Vongay, O. V. Chervyakova, T. A. Zavalishina, S. H. Aknazarov; RSE Institute of Combustion Problem, Kazakhstan

S2B-P004 **Smart Colloids of Exfoliated Layered Crystals: Photochemical Reactions in Colloidal Mixtures of Clay and Semiconductor Nanosheets**
T. Nakato, Y. Nono, A. Takahashi, M. Nakamura; Tokyo University of Agriculture and Technology, Japan

S2B-P005 **Development of High Density MoO_3 Pellets for Production of ^{99}Mo Medical Isotope**
A. Kimura[1], Y. Sato[2], M. Tanase[2], K. Tuchiya[1]; [1]Japan Atomic Energy Agency, Japan, [2]Chiyoda Technol Corporation, Japan

S2B-P006 **Synthesis and Photocatalytic Activity of Brookite Particles by Self-Hydrolysis Solution Method**
M. Inada, K. Iwamoto, N. Enomoto, J. Hojo; Kyushu University, Japan

S2B-P007 **Formation Mechanism and Characteristics of $BaTiO_3$ Powders Prepared by Thermal Decomposition of Barium Titanyl Oxalate Precursors**
A. Ianculescu[1], S. Guillemet-Fritsch[2], B. Durand[2], P. Alphonse[2], G. Voicu[1], P. Budrugeac[3]; [1]Polytechnics University of Bucharest, Romania, [2]Université Paul Sabatier, France, [3]INCDIE ICPE-CA, Romania

S2B-P008 **The Effect of Crystal Structure on Photoluminescence Property of $Y_3Al_5O_{12}$ Prepared by Glycothermal Reaction**
K. Uegaito, S. Hosokawa, M. Inoue; Kyoto University, Japan

S2B-P009 **Microwave Hydrothermal Synthesis of Activated Carbon from Rice Chaff**
T. Koga, M. Inada, N. Enomoto, J. Hojo; Kyushu University, Japan

Symposium 2C

Symposium 2C: Novel Chemical Processing; Chemical Tectonics for Materials Design

Main Organizers
- Katsuhisa Tanaka, Kyoto University, Japan
- Atsunori Matsuda, Toyohashi University of Technology, Japan
- Jianrong Qiu, Zhejiang University, China

Co-Organizers
- Aldo R. Boccaccini, Imperial College London, UK
- Plinio Innocenzi, Università di Sassari, Italy
- Peter G. Kazansky, University of Southampton, UK
- Dong-Pyo Kim, Chungnam National University, Korea
- Jianbei Qiu, Kunming University of Science and Technology, China
- Zainovia Lockman, Universiti Sains Malaysia, Malaysia
- Masahide Takahashi, Osaka Prefecture University, Japan

Oral Session

Monday, November 15

Room: 802

14:15 - 17:00: Novel Processing and Novel Functions

Chair: Masahide Takahashi (Osaka Prefecture University, Japan)

14:15 - 14:45
S2C-001 **Synthesis of Ceramics and Composite Materials by Novel CVD Routes (Invited)**
T. Goto; Tohoku University, Japan

14:45 - 15:15
S2C-002 **Effect of Anodisation Parameters on the Formation of Porous Anodic Oxide on Ti, Zr, Nb and W (Invited)**
Z. Lockman, S. Ismail; Universiti Sains Malaysia, Malaysia

15:15 - 15:45
S2C-003 **Magnetophotonic and Magnonic Crystals with Magnetic Garnet Films for Various Optical and Magnetic Microdevices (Invited)**
M. Inoue[1], A. V. Baryshev[1], J. Kim[1], P. B. Lim[1], H. Takagi[2], K. Yayoi[3], T. Goto[1], S. Mito[1], S. M. Baek[1], K. Tobinaga[1], J. Noda[1], Y. Haga[1]; [1]Toyohashi University of Technology, Japan, [2]Toyota National College of Technology, Japan, [3]Ibaragi National College of Technology, Japan

15:45 - 16:00
S2C-004 **Scattering-based Hole Burning in Macroporous Ce^{3+}:$Y_3Al_5O_{12}$ Crystal Prepared via Sol-gel Route Accompanied by Phase Separation**
K. Iwata, K. Fujita, S. Murai, K. Tanaka; Kyoto University, Japan

16:00 - 16:15 **Break**

16:15 - 16:30
S2C-005 **Broadband Optical Amplification of Micro-structure Controlled Glasses**
J. Qiu[1,2], S. Zhou[1], B. Wu[1]; [1]Zhejiang University, China, [2]South China University of Technology, China

16:30 - 16:45
S2C-006 **Preparation and Evaluation of Oxide and Multiple Oxide Ceramics by Mist Process**
M. Sato[1], S. Fujita[2], A. Nakahira[1,3]; [1]Tohoku University, Japan, [2]Kyoto University, Japan, [3]Osaka Prefecture University, Japan

16:45 - 17:00
S2C-007 **Effects Of Raw Materals And Temperature On The Growth Of 6H-SiC By PVT**
Y. Shi, P. Dai, J. Yang, G. Liu; Xi'an Jiaotong University, China

Tuesday, November 16

Room: 802

9:30 - 11:45: Self-Assembly and Organic-Inorganic Hybrid

Chair: Katsuhisa Tanaka (Kyoto University, Japan)

9:30 - 9:45
S2C-008 **Self-assembly Synthesis and Photocatalytic Properties of Layered Oxide Structure with Single-nm Thickness**
M. Ohtaki, M. Mori; Kyushu University, Japan

9:45 - 10:00
S2C-009 **Photo-Induced Fabrication of Titania-Polymer Hybrid Films with Tunable Hierarchical Structures and Stimuli-Responsive Property**
M. Takahashi; Osaka Prefecture University, Japan

10:00 - 10:15
S2C-010 **Synthesis and Material Design for Heteroanion Compounds**
K. Machida; Osaka University, Japan

10:15 - 10:30
S2C-011 **Structure Manufacturing of Proton-conducting Organic-inorganic Hybrid Phosphosilicate Membranes by Solventless Synthesis**
Y. Tokuda[1], S. Oku[1], T. Yamada[2], M. Takahashi[1], T. Yoko[1], H. Kitagawa[1,2]; [1]Kyoto University, Japan, [2]Kyushu University, Japan

10:30 - 10:45 **Break**

10:45 - 11:15
S2C-012 **A Combined Bottom-up and Top-down Approach towards the Design of Thin Films on Multiple Length Scales (Invited)**
L. Malfatti[1], P. Falcaro[2], S. Costacurta[3], H. Amenitsch[4], B. Marmiroli[4], F. C. Nerin[4], P. Innocenzi[1]; [1]Università di Sassari, Italy, [2]CSIRO, Australia, [3]Associazione CIVEN, Italy, [4]Austrian Academy of Sciences, Austria

11:15 - 11:45
S2C-013 **Versatile Functionality of Hydrophilic SiO_2-TiO_2 Resin and Preceramic Polymers for Microstructured Applications (Invited)**
D.-P. Kim; Chungnam National University, Korea

14:15 - 16:00: Molecular Tectonics

Chair: Atsunori Matsuda (Toyohashi University of Technology, Japan)

14:15 - 14:45
S2C-014 **Development of Bioinspired Inorganic/Organic Hybrids (Invited)**
T. Kato; The University of Tokyo, Japan

14:45 - 15:15
S2C-015 **Engineering Ultraporous Hybrid Crystals Using Ceramic Micro- and Nano-Particles (Invited)**
P. Falcaro, A. Hill, D. Buso; CSIRO Materials Science and Engineering, Australia

15:15 - 15:30
S2C-016 **Novel Manner of Crystal Growth through Dehydration and Polycondensation into Multilayered Structures in Zinc Hydroxide Compounds**
T. Tokunaga[1], E. Hosono[2], Y. Oaki[1], H. Imai[1], H. Zhou[2], S. Fujihara[1]; [1]Keio University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

Symposium 2C

15:30 - 15:45
S2C-017 **Nanostructured Artificial Nacre Prepared From Montmorillonite via a Drying Process**
F. Gridi-Bennadji, G. Lecomte-Nana, J-P. Bonnet, S. Rossignol; GEMH, ENSCI Limoges, France

15:45 - 16:00
S2C-018 **Relationship between Interfacial Instabilities and Mechanical Strength of Three-layer (PP/HDPE/PP) Polymer Structure**
M. M. Ranjbarann; Shahid Rajaee University, Iran

16:00 - 16:15 **Break**

16:15 - 18:00: Effect of External and Enhanced Fields

Chair: Jianbei Qiu (Kunming University of Science and Technology, China)

16:15 - 16:30
S2C-019 **Selective Growth and SERS Property of Gold Nanoparticles on Amorphized Silicon Surface**
T. Matsuoka, M. Nishi, M. Sakakura, Y. Shimotsuma, K. Miura, K. Hirao; Kyoto University, Japan

16:30 - 16:45
S2C-020 **Redox Mechanism of Ag/AgCl Nanoparticles Dispersed in Organosilsesquioxane-Titania Matrix**
G. Kawamura, Y. Tsurumi, H. Muto, M. Inoue, A. Matsuda; Toyohashi University of Technology, Japan

16:45 - 17:00
S2C-021 **Enhancement of Optical Birefringence in Transition-Metal-Oxide Thin Films Containing Silver Nanoparticles**
T. Tsujiguchi, S. Murai, K. Fujita, K. Tanaka; Kyoto University, Japan

17:00 - 17:15
S2C-022 **Surface Plasmon Enhanced Optical Birefringence in Thermally Poled Tellurite Glass**
R. Hattori, S. Murai, K. Fujita, K. Tanaka; Kyoto University, Japan

17:15 - 17:30
S2C-023 **Orientation of Carbon Nano-fiber in Carbon/Silica Composite Prepared under High Magnetic Field**
N. Kitamura[1], K. Fukumi[1], K. Takahashi[2], I. Mogi[2], S. Awaji[2], K. Watanabe[2]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Tohoku University, Japan

17:30 - 18:00
S2C-024 **Physical, Chemical, and Biological Phenomena within Vector Space Developed around Polarized Hydroxyapatite and Related Ceramics (Invited)**
K. Yamashita; Tokyo Medical and Dental University, Japan

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 -14:00

S2C-P001 ***In Situ* Observation of Solidifying Process of Inorganic Powder Materials during a Hydrothermal Hot-pressing**
T. Onoki; Osaka Prefecture University, Japan

S2C-P002 **Effects of Subsequent Treatments on Transparency of Y-zeolite Ceramics by a Hydrothermal Hot-pressing**
T. Onoki[1], T. Wakihara[2], A. Nakahira[1,3]; [1]Osaka Prefecture University, Japan, [2]Yokohama National University, Japan, [3]Tohoku University, Japan

S2C-P003 Synthesis and Evaluation of A-zeolite by Rotary Hydrothermal Treatments
T. Shirai[1], Y. Kawabe[1], T. Moriguchi[1], T. Wakihara[2], A. Nakahira[1,3]; [1]Osaka Prefecture University, Japan, [2]Yokohama National University, Japan, [3]Tohoku University, Japan

S2C-P004 Synthesis and Characterization of LTA-type Zeolite by Microwave-assisted Hydrothermal Processing
K. Kumadani[1], T. Moriguchi[1], Y. Takamatsu[1], A. Nakahira[1,2]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan

S2C-P005 Synthesis of Zeolite Membrane on Ceramic Tubular Supports by Hydrothermal Method
T. Moriguchi[1], H. Ohnishi[2], A. Nakahira[1,3]; [1]Osaka Prefecture University, Japan, [2]Nikkato Corporation, Japan, [3]Tohoku University, Japan

S2C-P006 Synthesis of Zeolite from Various Slag Materials by Soft Chemical Processing
M. Sato[1], A. Nakahira[1,2]; [1]Tohoku University, Japan, [2]Osaka Prefecture University, Japan

S2C-P007 Synthesis of Titanate Nanotubes by Planet-Rotary-Hydrothermal Process
Y. Takamatsu[1], M. Sato[2], A. Nakahira[1]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan

S2C-P008 Synthesis and Characterization of Poatassium Niobate based Ceramics by Various Hydrothermal Processings
S. Hayashi[1], S. Tajiri[1], Y. Takamatsu[1], M. Sato[2], A. Nakahira[1,2]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan

S2C-P009 Morphological Control of Hydroxyapatite Precipitate from High-Concentration Hydroxyapatite Solution Using Microwave Irradiation
H. Yoshida, T. Toyama, Y. Kojima, N. Nishimiya; Nihon University, Japan

S2C-P010 Effect of Mn Addition on Microstructure of Hydroxyapatite and their Properties
T. Nagayasu[1], Y. Nishio[1], M. Sato[2], H. Murata[3], K. Matsunaga[3], A. Nakahira[1,2]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan, [3]Kyoto University Yoshida, Japan

S2C-P011 Synthesis and Evaluation of Hydroxyapatite with Addition of Europium
Y. Nishio[1], M. Sato[2], H. Murata[3], K. Matsunaga[3], A. Nakahira[1,2]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan, [3]Kyoto University, Japan

S2C-P012 Water/Alcohol Separation Utilizing Ultra-hydrophobic Multilayered Silica Particles Prepared by Self-Assembly Technique
Y. Daiko[1], T. Jin[2], T. Yazawa; [1]University of Hyogo, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

S2C-P013 Solution Synthesis of Organic/Inorganic Composite Coaxial Nanocable Consisting of Zinc Oxide and Polypyrrole
T. Oki, Y. Oaki, H. Imai; Keio University, Japan

S2C-P014 Tunable Magnetoresponsive Hybrid Capsules Formed with Fe_3O_4 Nanoparticles and Lipid Membrane
Y. Imai, K. Katagiri, K. Koumoto; Nagoya University, Japan

S2C-P015 Synthesis of LDH Modified with Other Cation and Exfoliation Behaviors
S. Tajiri[1], T. Okumiya[2], A. Nakahira[1.3]; [1]Osaka Pref. Univ., Japan, [2]Tayca CoLtd, Japan, [3]Tohoku University, Japan

S2C-P016 Evaluation for Mechanical Property of Novel Al_2O_3-Carbon Nanocomposite Fabricated by Electrostatic Adsorbed Assembly Technique
N. Hakiri[1], H. Muto[1], K. Katagiri[2], G. Kawamura[1], A. Matsuda[1], M. Sakai[1]; [1]Toyohashi University of Technology, Japan, [2]Nagoya University, Japan

Symposium 2C

S2C-P017 Fabrication of Crystalline-Oriented Porous Titania Films on Transparent Electrode by Electrophoretic Deposition
K. Kawai[1], T. Uchikoshi[2], T. Suzuki[2], H. Muto[1], A. Matsuda[1]; [1]Toyohashi University of Technology, Japan, [2]National Institute for Materials Science, Japan

S2C-P018 Synthesis and Characterization of Co-doped TiO_2 Powder with Meso-porous Structure by Anodization Process
Y. Kawabe[1], S. Yamamoto[1], M. Sato[2], M. Takeuchi[1], M. Matsuoka[1], M. Anpo[1], A. Nakahira[1,2]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan

S2C-P019 New Synthesis of Novel Nanomaterials Using Anodic Oxidation Process
S. Yamamoto[1], Y. Kawabe[1], M. Takeuchi[1], M. Matsuoka[1], M. Anpo[1], A. Nakahira[1,2]; [1]Osaka Prefectural University, Japan, [2]Tohoku University, Japan

S2C-P020 Fabrication of Mesoporous (100-x)SiO_2-xTiO_2 Matrix Loaded with Shape-Controlled Au Nanoparticles
T. Okuno, G. Kawamura, H. Muto, A. Matsuda; Toyohashi University of Technology, Japan

S2C-P021 Preparation of Palladium/Titania Optical Hydrogen Sensor Operated at Room Temperature by Environmentally Friendly Process
H. Oda[1], R. Araki[2], J. Hamagami[2], G. Kawamura[1], H. Muto[1], A. Matsuda[1]; [1]Toyohashi University of Technology, Japan, [2]Kurume National College of Technology, Japan

S2C-P022 Low Tempereture Crystallization of Titanium Oxide Films by Hot-water Treatment and Application for Dye-sensitized Solar Cell
H. Sakamoto, M. A. B. M. Nor, G. Kawamura, H. Muto, A. Matsuda; Toyohashi University of Technology, Japan

S2C-P023 Characterization of SiO_2/SiAlON Phosphor Composite Films Prepared by Using SiO_2 Coated Phosphor
T. Kitabatake[1,2], T. Uchikoshi[2], F. Munakata[1], Y. Sakka[2], N. Hirosaki[2]; [1]Tokyo City University, Japan, [2]National Institute for Materials Science,Japan

S2C-P024 Synthesis of Hexagonal Plate-Shaped Y_2O_3:Eu Red Phosphor by Precipitation from Homogeneous Solution
N. Naruse[1], K. Tomita[1,2], Y. Miura[1], M. Kakihana[2]; [1]Tokai University, Japan, [2]Tohoku University, Japan

S2C-P025 Optical Control of Terahertz Transmission through Non-doped Silicon Subwavelength Hole Arrays
T. Okada, S. Tsuji, K. Hirao, K. Tanaka, K. Tanaka; Kyoto University, Japan

S2C-P026 Precise Analysis of $Bi_2Sr_2Ca_{n-1}Cu_nO_y$ Superconducting Whiskers by SR-XPS and HR-TEM
H. Tanaka[1], H. Yoshikawa[2], C. Tsuruta[2], Y. Matsui[2], S. Kishida[3]; [1]Yonago National College of Technology, Japan, [2]National Institute for Materials Science, Japan, [3]Tottori University, Japan

S2C-P027 The Effect of Post Heat Treatment on Synthesis of NiTi-TiC via Mechanical Activating
R. Ghaderi, M. R. Rahimipour, M. Alizadeh; Materials and Energy Research Center, Iran

S2C-P028 Evaluation and Development of New Applications for CeO_2-based Ceramics with High Oxygen Separation Ability
A. Nakahira[1,2], E. Maeda[3], D. M. Taylor[4], T. Yamamoto[5]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan, [3]Maeda Materials Co., Ltd, Japan, [4]Ceramatec INC, USA, [5]National Defense Academy, Japan

Symposium 3: Nano-Crystals and Advanced Powder Technology

Main Organizers
- Yuji Hotta, AIST, Japan
- Minoru Osada, NIMS, Japan
- Hasan Göcmez, Dumlupinar University, Turkey

Co-Organizers
- Ilhan A. Aksay, Princeton University, USA
- Lennart Bergström, Stockholm University, Sweden
- Cihangir Duran, Gebze Institute of Technology, Turkey
- George V. Franks, University of Melbourne, Australia
- Masayoshi Fuji, Nagoya Institute of Technology, Japan
- Ludwig J. Gauckler, ETH Zurich, Switzeland
- Tomaž Kosmač, Jožef Stefan Institute, Slovenia
- Renzi Ma, National Institute for Material Science (NIMS), Japan
- Hideki Maekawa, Tohoku University, Japan
- Gary Messing, Pennsylvania State University, USA
- Ce-Wen Nan, Tsinghua University, China
- Valery Petrykin, J. Heyrovsky Institute of Physical Chemistry, Czech Republic
- Richard Riman, Rutgers, The State University of New Jersey, USA
- Satoshi Tanaka, Nagaoka University of Technology, Japan
- Tetsuo Uchikoshi, NIMS, Japan
- Koji Watari, AIST, Japan

Oral Session

Monday, November 15

Room: 1002

14:15 - 16:00: Synthesis, Functionalization and Processing of Nanocrystals (I)

Chairs: Kazumi Kato (National Institute of Advanced Industrial Science and Technology, Japan) and Satoshi Wada (University of Yamanashi, Japan)

14:15 - 14:45

S3-001 **Environmentally Benign Synthesis of Nanocrystals from Water Using Novel Water- Soluble Compounds (Invited)**
M. Kakihana[1], M. Kobayashi[1], T. Q. Duc[1], H. Kato[1], V. Petrykin[2], K. Tomita[3]; [1]Tohoku University, Japan, [2]J. Heyrovsky Institute of Physical Chemistry, Czech Republic, [3]Tokai University, Japan

14:45 - 15:15

S3-002 **The Structural Modification of the Metal Oxide Nanoparticles in Chemical Vapor Synthesis and Related Properties (Invited)**
J.-S. Lee, C.-W. Lee, K.-N. Lee; Hanyang University, Korea

15:15 - 15:30

S3-003 **Design of Interconnections of Novel Complex Oxide Nanoparticles**
S. Wada[1], T. Goto[1], S. Iwatsuki[1], M. Kera[1], I. Fujii[1], K. Nakashima[1], Y. Kuroiwa[2]; [1]University of Yamanashi, Japan, [2]Hiroshima University, Japan

15:30 - 15:45

S3-004 **Selective Growth of Monoclinic and Tetragonal Zirconia Nanocrystals**
K. Sato[1], H. Abe[2], S. Ohara[2]; [1]Gunma University, Japan, [2]Osaka University, Japan

Symposium 3

15:45 - 16:00
S3-005 **High Spatial Resolution SIMS Analysis for Characterization of Ceramics**
H. Haneda[1,2], I. Sakaguchi[1], N. Saito[1], K. Matsumoto[2], K. Watanabe[1], M. Inada[2], J. Hojo[2], N. Ohashi[1,2]; [1]National Institute for Materials Science, Japan, [2]Kyushu University, Japan

16:00 - 16:15 **Break**

16:15 - 18:00: Synthesis, Functionalization and Processing of Nanocrystals (II)

Chairs: Masato Kakihana (Tohoku University, Japan) and Jai-Sung Lee (Hanyang University, Korea)

16:15 - 16:45
S3-006 **Nanocrystals and their Characteristic Behaviors Leading Advanced Ceramic Components (Invited)**
K. Kato[1], F. Dang[1], H. Imai[2], S. Wada[3], H. Haneda[4], M. Kuwabara[5]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Keio University, Japan, [3]Yamanashi University, Japan, [4]National Institute for Materials and Science, Japan, [5]Kyushu University, Japan

16:45 - 17:15
S3-007 **Fabrication of Nanocrystal Ceramic Devices with Giant Functionalities: Feasible Methods and Technical Problems to be Solved (Invited)**
M. Kuwabara; University of Tokyo, Japan

17:15 - 17:30
S3-008 **Bottom-up Assembly of High-*k* Dielectric Nanofilms Using Molecularly-thin Perovskite Nanosheets as a Building Block**
B.-W. Li[1], M. Osada[1,2], T. C. Ozawa[1,2], R. Ma[1,2], K. Akatsuka[1], Y. Ebina[1,2], H. Funakubo[3], T. Sasaki[1,2]; [1]National Institute for Materials Science, Japan, [2]Japan Science and Technology Agency, Japan, [3]Tokyo Institute of Technology, Japan

17:30 - 17:45
S3-009 **Formation and Characteristics of Anatase-Type Titania Solid Solution Nanoparticles Doped with Nb^{5+} and M (M=Ga^{3+}, Al^{3+}, Sc^{3+})**
M. Hirano, T. Ito; Aichi Institute of Technology, Japan

17:45 - 18:00
S3-010 **Hydrogen Production from Water Using Photocatalysts (Invited)**
H. Kato, M. Kakihana; Tohoku Univeristy, Japan

Tuesday, November 16

Room: 1002

9:00 - 10:30: Powder Synthesis, Powder Processing and Coating (I)

Chairs: George Franks (University of Melbourne, Australia) and Takashi Shirai (Nagoya Institute of Technology, Japan)

9:00 - 9:15
S3-011 **Powder Nanocoatings and 3D Architectures Prepared via Layer-by-Layer Self-Assembly Technique (Invited)**
Y. Daiko[1], K. Katagiri[2], H. Muto[3], T. Yazawa[1], A. Matsuda[3]; [1]University of Hyogo, Japan, [2]Nagoya University, Japan, [3]Toyohashi University of Technology, Japan

9:15 - 9:30
S3-012 **The Synthesis, Characterization and Mechanical Properties of Al_2O_3/ZrO_2 Nanocrystalline Powders by Supercritical CO_2 Method**
H. Gocmez[1], M. Tuncer[1], O. Sahin[2], I. Uzulmez[1]; [1]Dumlupinar University, Turkey, [2]Mustafa Kemal University, Turkey

9:30 - 9:45
S3-013 **Preparation of Spherical Submicronic Barium Zirconate Particles in Highly Basic Solution Below 100°C**
F. Boschini, R. Cloots, B. Vertruyen; University of Liège, Belgium

9:45 - 10:00
S3-014 **Preparation of Titanium Nanosized Powder by Pulse Wire Discharged**
H. Suematsu, Y. Tokoi, T. Suzuki, T. Nakayama, K. Niihara; Nagaoka University of Technology, Japan

10:00 - 10:15
S3-015 **Highly Luminescent Ge Nanocrystals Synthesized via Laser Chemical Approach**
D. Hirakawa[1,2], N. Shirahata[2,3], Y. Sakka[1,2]; [1]University of Tsukuba, Japan, [2]National Institute for Materials Science, Japan, [3]Japan Science and Technology Agency, Japan

10:15 - 10:30
S3-016 **Nanosized Powders Synthesized by Pulsed Discharge of Powders**
S. Ishihara, M. Okumura, H. Suematsu, T. Nakayama, T. Suzuki, K. Niihara; Nagaoka University of Technology, Japan

10:30 - 10:45 **Break**

10:45 - 11:45: Powder Synthesis, Powder Processing and Coating (II)

Chairs: Yusuke Daiko (University of Hyogo, Japan) and
Takaaki Nagaoka (National Institute of Advanced Industrial Science and Technology, Japan)

10:45 - 11:00
S3-017 **Formation and Growth Mechanism of Calcium Carbonate Nanoparticles via a Bubbling Method**
K. Eguchi[1,2], T. Satake[1], M. Tajika[1], S. Kuwamoto[3], K. Yokoyama[3], J. Matsui[3], T. Issiki[4], N. Umesaki[2,5]; [1]Shiraishi Central Laboratories Co. Ltd., Japan, [2]Kobe University, Japan, [3]Hyogo Science and Technology Association , Japan, [4]Kyoto Institute of Technology, Japan, [5]Japan Synchrotron Radiation Research Institute, Japan

11:00 - 11:15
S3-018 **Coating of Nano ZrB_2 on Cu Substrate Using Roll-Milling Process**
U. Olgun[1], H. Gocmez[2], S. Okur[3]; [1]Sakarya University, Turkey, [2]Dumlupınar University, Turkey, [3]İzmir Institute of Technology, Turkey

11:15 - 11:45
S3-019 **Direct Fabrication of Nano-Structured Ceramic Films and Patterns from Solution without Firing of Powders/Particles (Invited)**
M. Yoshimurra[1,2]; [1]Tokyo Institute of Technology, Japan, [2]National Cheng Kung University, Taiwan

14:15 - 16:00: Shaping and Composite(I)

Chairs: Hasan Gocmez (Dumlupinar University, Turkey) and Masayoshi Fuji (Nagoya Institute of Technology, Japan)

14:15 - 14:30
S3-020 **Textured Bismuth Layer-Structureed Ferroelectronics Prepared by High Magnetic Field and a Subsequent Reaction Sintering in Rotating Magnetic Field (Invited)**
S. Tanaka[1], T. Kimura[1], R. Furushima[1], H. Shimizu[2], Y. Doshida[2], K. Uematsu[1]; [1]Nagaoka University of Technology, Japan, [2]Taiyo Yuden Co Ltd., Japan

14:30 - 15:00
S3-021 **Complex Shape Forming: Gelcasting with PVA for Complex Shaped Components and Tapes (Invited)**
G. V. Franks; University of Melbourne, Australia

15:00 - 15:15
S3-022 **Anisotropic Shrinkage of Particle-Oriented Alumina Green Compacts Prepared by High Magnetic Field with Different Dispersion Slurries**
R. Furushima, S. Tanaka, Z. Kato, K. Uematsu; Nagaoka University of Technology, Japan

15:15 - 15:30
S3-023 **Fabrication of High Dense and Highly Oriented Strontium Barium Niobate Ceramics by a Rotating Magnetic Field**
T. Takahashi, S. Tanaka, R. Furushima, Z. Kato, K. Uematsu; Nagaoka University of Technology, Japan

Symposium 3

15:30 - 15:45
S3-024 **Contorol of Microstructure in the Textured Alumina Preparing in a Strong Magnetic Field (Invited)**
T. S. Suzuki, T. Uchikoshi, Y. Sakka; National Institute for Materials Science, Japan

15:45 - 16:00
S3-025 **AlN Ceramic/Polymer Composites Prepared by Polymer Blend Technique (Invited)**
K. Nagata[1], A. Matsuyama[1], K. Mizuno[1], Y. Hotta[2], K. Sato[2], M. Higuchi[1], T. Kinoshita[1], K. Watari[2]; [1]Nagoya Institute of Technology, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

16:00 - 16:15 **Break**

16:15 - 17:30: Shaping and Composite (II)

Chairs: Satoshi Tanaka (Nagaoka University of Technology, Japan) and
Tohru Suzuki (National Institute for Materials Science, Japan)

16:15 - 16:30
S3-026 **Effects of Powder Surfaces Condition on the Fabrication of Non-firing Ceramics (Invited)**
T. Shirai, E. Apiluck, H. Watanabe, M. Fuji, M. Takahashi; Nagoya Institute of Technology, Japan

16:30 - 16:45
S3-027 **Synthesis and Electrochemical Characterization of Electrically Conductive Porous Alumina Composites Modified by Nickel and Platinum Nanoparticles**
C. Hai[1], M. Fuji[1], F. Wang[2], H. Watanabe[1], T. Shirai[1], I. Yamada[1], M. Takahashi[1]; [1]Nagoya Institute of Technology, Japan, [2]Beijing University of Chemical Technology, China

16:45 - 17:00
S3-028 **Inner Surface Coating of Non-Conductive Tubular Substrate Using Electrophoretic Deposition**
L. Kreethawate[1], S. Larpkiattaworn[2], S. Jiemsirilers[1], T. Uchikoshi[3]; [1]Chulalongkorn University, Thailand, [2]Thailand Institute of Scientific and Technological Research, Thailand, [3]National Institute for Materials Science, Japan

17:00 - 17:15
S3-029 **Preparation and Evaluation of TiO_2 Nanoparticle Thin Films Depoisited Using Electrophoresis Deposition Method**
R. Kawakami, K. Ito, Y. Sato, Y. Mori, M. Adachi, S. Yoshikado; Doshisha University, Japan

17:15 - 17:30
S3-030 **Direct Template Approach for the Formation of (Anisotropic Shape) Hollow Silicate Microparticles**
R. V. Rivera-Virtudazo, H. Watanabe, T. Shirai, M. Fuji, M. Takahashi; Nagoya Institute of Technology, Japan

Wednesday, November 17

Room: 1002

9:00 - 10:30: Inorganic Nanosheets: Synthesis and New Structures

Chairs: Seong-Ju Hwang (Ewha Womans University, Korea) and
Minoru Osada (National Institute for Materials Science, Japan)

9:00 - 9:30
S3-031 **Inorganic Nanosheets as a Unique Class of Nanoscale Materials: Synthesis, Properties and Applications (Invited)**
T. Sasaki, M. Osada, Y. Ebina, R. Ma, T. C. Ozawa, T. Shibata, K. Akatsuka; National Institute for Materials Science, Japan

9:30 - 9:45
S3-032 **Synthesis, Topotactic Transformaion And Nanofilm Fabrication of Layered Hydroxide Hexagonal Platelet Crystals (Invited)**
R. Ma[1], J. Liang[1], L. Hu[1,2], M. Osada[1], T. Sasaki[1,2]; [1]National Institute for Materials Science, Japan, [2]University of Tsukuba, Japan

9:45 - 10:00
S3-033 **Nanocomposites Synthesized via Restacking of the Nanosheets Exofoliated from Inoganic Layered Compounds (Invited)**
X. Yang; Beijing Normal University, China

10:00 - 10:30
S3-034 **Organo Silicon Nanosheets Derived Layered Silicon Compounds (Invited)**
H. Nakano; Toyota Central R&D Laboratories, Inc., Japan

10:30 - 10:45 **Break**

10:45 - 12:00: Clay Nanosheets and Graphene Composites

Chairs: Takayoshi Sasaki (National Institute for Materials Science, Japan) and Hideyuki Nakano (Toyota Central R&D Laboratories, Inc., Japan)

10:45 - 11:15
S3-035 **Donor-type Graphite Intercalation Compounds Containing Alkali Metal Cations with Amines and Polyamines (Invited)**
T. Malunagnont[1], K. Gotoh[2], M. M. Lerner[1]; [1]Oregon State University, USA, [2]Okayama University, Japan

11:15 - 11:30
S3-036 **Developing Graphene-Based Electrode Materials for Lithium-Ion Batteries (Invited)**
Z. Liu, X. Zhou; Chinese Academy of Sciences, China

11:30 - 11:45
S3-037 **Designing Layered Transition Metal Oxides for Efficienct Photo-electrochemical Energy Conversion (Invited)**
A. Mukherji, G. Liu, M. Lim, G. Q. Lu, L. Wang; The University of Queensland, Australia

11:45 - 12:00
S3-038 **Clay Electronics (Invited)**
H. Sato[1], K. Tamura[2], A. Yamagishi[3]; [1]Ehime University, Japan, [2]National Institute for Materials Science, Japan, [3]Toho University, Japan

13:15 - 15:00: Inorganic Nanosheets: Optical Properties

Chairs: Michael Lerner (Oregon State University, USA) and Lianzhou Wang (The University of Queensland, Australia)

13:15 - 13:45
S3-039 **Electric-Field and Magnetic-Field Alignment of Liquid-Crystalline Suspensions of Mineral Nanosheets (Invited)**
E. Paineau[1], K. Antonova[2], C. Baravian[1], I. Bihannic[1], P. Davidson[3], I. Dozov[2], F. Meneau[4], L. J. Michot[1]; [1]Nancy University, France, [2]Bulgarian Academy of Sciences, Bulgaria, [3]Université Paris-Sud, France, [4]SOLEIL Synchrotron Facility, France

13:45 - 14:15
S3-040 **Colloidal System of Semiconducting Oxide Nanosheets: Liquid Crystalline Behavior and Phtochemical Applications (Invited)**
T. Nakato; Tokyo University of Agriculture and Technology, Japan

14:15 - 14:30
S3-041 **Liquid Crystal Phases of Colloidal Layered Clay Mineral Nanosheets and Their Applications for Functional Soft Materials (Invited)**
N. Miyamoto; Fukuoka Institute of Technology, Japan

14:30 - 14:45
S3-042 **Preparation of Luminescent Nanosheets by Exfoliation of Layered Materials (Invited)**
S. Ida, T. Ishihara; Kyushu University, Japan

Symposium 3

14:45 - 15:00

S3-043 **Rare-earth Doped Oxide Nanosheets for "Nanosheet Lighting"**
T. C. Ozawa[1,2], K. Fukuda[2,3], K. Akatsuka[1,2], Y. Ebina[1,2], T. Sasaki[1,2]; [1]National Institute for Materials Science, Japan, [2]Japan Science and Technology Agency, Japan, [3]Shinshu University, Japan

15:15 - 17:15: Inorganic Nanosheets: Electronic Properties and New Devices

Chairs: Patrick Davidson (CNRS, France) and Teruyuki Nakato (Tokyo University of Agriculture and Technology, Japan)

15:15 - 15:45

S3-044 **Two-Dimensional Transition Metal Oxide Nanosheets: Useful Precursors for Nanohybrid Materials Applicable for Light Harvesting and Electrical Energy Storage (Invited)**
S.-J. Hwang; Ewha Womans University, Korea

15:45 - 16:15

S3-045 **Oxide Nanosheets as Efficient Electrode Materials for Li-ion Batteries (Invited)**
M. Miyayama; The University of Tokyo, Japan

16:15 - 16:30

S3-046 **Synthesis and Electrochemistry of Conducting Ruthenate Nanosheets (Invited)**
W. Sugimoto, Y. Takasu, K. Fukuda; Shinshu University, Japan

16:30 - 16:45

S3-047 **Real Structure of Metastable RuO_2-based Nanocrystalline Electrocatalytic Materials Prepared by Advanced Solution Methods**
V. Petrykin[1], P. Krtil[1], M. Okube[2], K. Macounova[1], J. Franc[1]; [1]Academy of Sciences of Czech Republic, Czech Republic, [2]Tokyo Institute of Technology, Japan

16:45 - 17:00

S3-048 **Two-dimensional Nanosheet as a Seed Layer to Control Crystallographic Orientation of Oxide Thin Films on Glass Substrates (Invited)**
T. Shibata[1], Y. Ebina[1], T. Ohnishi[1], K. Takada[1], T. Kogure[2], T. Sasaki[1]; [1]National Institute for Materials Science, Japan, [2]The University of Tokyo, Japan

17:00 - 17:15

S3-049 **Functional Thin Films Assembled from Oxide Nanosheets**
M. Osada[1,2], T. Sasaki[1,2]; [1]National Institute for Materials Science, Japan, [2]Japan Science and Technology Agency, Japan

Thursday, November 18

Room: 1002

9:00 - 10:30: Powder Synthesis, Powder Processing and Coating (III)

Chairs: Yusuke Daiko (University of Hyogo, Japan) and
Yuji Hotta (National Institute of Advanced Industrial Science and Technology, Japan)

9:00 - 9:30

S3-050 **Effect of High Energy Milling on the Formation and Properties of Sialon Ceramics Prepared from Silicon Nitride-Aluminium Nitride Precursors (Invited)**
C. Duran[1], M. Sopicka-Lizer[2], H. Göçmez[3], T. Pawlik[2], M. Mikuskiewicz[2], K. MacKenzie[4]; [1]Gebze Institute of Technology, Turkey, [2]Silesian University of Technology, Poland, [3]Dumlupınar University, Turkey, [4]Victoria University of Wellington, New Zealand

9:30 - 9:45

S3-051 **Characterization of the Magnesium Hydride-Alumina Composite with Nano Structure Fabricated by High-Energy Ball Milling**
N. Yamasaki, Y. Kodera, M. Ohyanagi; Ryukoku University, Japan

9:45 - 10:00
S3-052 **Fabrication of Submicron Spherical B_4C Particles by Pulsed Laser Irradiation of B in Liquid Media Under Low Fluence Condition**
Y. Ishikawa[1], N. Koshizaki[2]; [1]Kagawa University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

10:00 - 10:15
S3-053 **Fabrication and Evaluation of CNT Dispersed Si_3N_4 Ceramics Having Double Percolation Structure**
S. Yoshio, J. Tatami, T. Wakihara, T. Yamakawa, K. Komeya, T. Meguro; Yokohama National University

10:15 - 10:30
S3-054 **Fabricating Yttrium Aluminum Garnet Powders with Specific Sizes**
F. S. Yen, C.-T. Hung; National Cheng Kung Univesity, Taiwan

10:30 - 10:45 **Break**

10:45 - 11:30: Powder Synthesis, Powder Processing and Coating (IV)

Chairs: Setsuaki Murakami (National Institute of Advanced Industrial Science and Technology, Japan) and Cihangir Duran (Gebze Institute of Technology, Turkey)

10:45 - 11:00
S3-055 **Iron Oxide/Al and Copper Oxide/Al Composites Fabricated by Ultrasonic Powder Consolidation Process**
S. K. Pillai[1], A. Hadjiafxenti[1], T. Ando[2], C. C. Doumanidis[1], C. Rebholz[2]; [1]University of Cyprus, Cyprus, [2]Northeastern University, USA

11:00 - 11:15
S3-056 **The Effect of Time and Atmospheres of Planetary Milling on X-Sialon Formation by Silicothermal Reduction and Nitridation (SRN) Process**
A. Jamshidi G.[1], A. A. Nourbakhsh[2], R. J. Kalbasi[2], S. Naghibi[2], F. Golestani-Fard[3]; [1]Islamic Azad University, Iran, [2]Iran University of Science and Technology, Iran

11:15 - 11:30
S3-057 **Fabrication and Characterization of Various Shapes of ZnO Nanoparticles Using Aqueous Solution Process**
S. B. Ghaffari, J. Moghaddam; Sahand University of Technology, Iran

13:15 - 15:00: Slurry, Paste, Colloidal Processing and Analysis (I)

Chairs: Tetsuo Uchikoshi (National Institute for Materials Science, Japan) and Kimiyasu Sato (National Institute of Advanced Industrial Science and Technology, Japan)

13:15 - 13:30
S3-058 **Effect of Ion on the Interaction Forces between Alumina Surfaces**
T. Isobe, M. Hayashi, A. Nakajima; Tokyo Institute of Technology, Japan

13:30 - 13:45
S3-059 **New Nanoparticles Dispersing Beads Mill with Ultra Small Beads and its Application**
M. Inkyo, T. Tahara, Y. Imajyo; Kotobuki Industries Co., Ltd., Japan

13:45 - 14:00
S3-060 **Consolidation Behavior of Nanometer-sized SiC Particles with Phenylalanine through Pressure Filtration at 1MPa**
A. Yamashita, Y. Hirata, N. Matsunaga, S. Sameshima; Kagoshima University, Japan

14:00 - 14:15
S3-061 **Interaction of Nanosecond Pulse Laser with Colloidal Nanoparticles of Copper Oxides**
A. Pyatenko, H. Wang, N. Koshizaki; National Institute of Advanced Industrial Science and Technology, Japan

Symposium 3

14:15 - 14:30

S3-062 **Colloidal Processing of Ultra High Temperature Ceramics**
C. Tallon[1,3], D. Chavara[2,3], A. Gillen[2,3], D. Riley[1,3], L. Edwards[2,3], S. Moricca[2,3], G. V. Franks[1,3]; [1]The University of Melbourne, Australia, [2]Australian Nuclear Science and Technology Organisation, Australia, [3]Defence Materials Technology Centre, Australia

14:30 - 14:45

S3-063 **Relation between Flow Property and Packing Property of Dense Slurry**
K. Asai[1], T. Mori[1], JI. Tsubaki[1], H. Ohtsuka[2]; [1]Nagoya University, Japan, [2]NGK Spark Plug Co.,Ltd, Japan

14:45-15:00

S3-064 **Experimental Study on Adsorption Behavior of Polyelectrolyte to Alumina Particles**
T. Kiguchi, T. Mori, JI. Tsubaki; Nagoya University, Japan

15:00 - 15:15 **Break**

15:15 - 16:30: Slurry, Paste, Colloidal Processing and Analysis (II)

Chairs: Alexander Pyatenko (National Institute of Advanced Industrial Science and Technology, Japan) and Takamasa Mori (Nagoya University, Japan)

15:15 - 15:30

S3-065 **Rheological Control of Aqueous Suspensions with Nano Sized Gamma- Alumina**
A. Zamorategui[1], S. Sugita[1], K. Uematsu[2]; [1]Guanajuato University, Mexico, [2]Nagaoka University of Technology, Japan

15:30 - 15:45

S3-066 **Characterization of Conductive Paste Prepared from Platinum Coated Alumina Particles**
M. Honma[1,2], S. Motai[2], S. Kawasumi[2], H. Kamiya[1]; [1]Tokyo University of Agriculture and Technology, Japan, [2]Toho Titanium Co., Ltd.

15:45 - 16:15

S3-067 **Polymer Mediated Interaction Forces between Alumina Surfaces (Invited)**
K. Sato[1], H. Yilmaz[1,2], Y. Hotta[1], K. Watari[1]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Gebze Institute of Technology, Turkey

16:15 - 16:30

S3-068 **Ceramic Paste for Injection Molding Process**
S. Murakami[1], K. Ri[1], W. Shin[1], T. Itoh[1], I. Matsubara[1], Y. Takahashi[2], Y. Ando[2]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Noritake Co., Limited, Japan

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 -14:00

S3-P001 **Hybrid Solvothermal Synthesis of $CuInSe_2$ Nanoparticles**
W.-M. Wang, W. Si, Z.-Y. Fu, H. Wang, Y.-C. Wang, Q.-G. Zhou; Wuhan University of Technology, China

S3-P002 **Surface Grafting of Silica Nanoparticles Using Supercritical Carbon Dioxide**
Y.-P. Chen[1], M. Tang[2]; [1]National Taiwan University, Taiwan, [2]Chinese Culture University, Taiwan

S3-P003 **Preparation and Characteristics of Nanocrystalline Nickel Oxide and Effect of Precursors on its Morphology and Surface Properties**
M. R. Kalaie, A. A. Youzbashi, K. Ahmadi; Materials and Energy Research Center, Iran

S3-P004 **Sythesis and Characterization of Iron Oxide Nanoparticles**
H. Kimura, K. Uematsu, T. Ishigaki, K. Toda, M. Sato; Niigata University, Japan

S3-P005 **Synthesis of Rutile-Type TiO_2-SnO_2 Solid Solution Nanoparticles by "Forced Co-Hydrolysis" under Hydrothermal Conditions**
M. Hirano, T. Kono; Aichi Institute of Technology, Japan

S3-P006 **Rare-Earth Element Oxide Doped Nanocrystalline Zirconia Powders**
V. N. Antsiferov, V. B. Kulmetyeva, S. Y. Porozova; Perm State Technical University, Russia

S3-P007 **Exploring the Preparation of Nanostructured Carbide, Boride, and Nitride Ceramic Powders Using Scalable Solvothermal Reactions**
J. P. Kelly, B. M. Clark, O. A. Graeve; Alfred University, USA

S3-P008 **The Influenced of Heat Treatment Temperature on Synthesis of Nano-Particle Size Hydroxyapatite by Chemical Precipitation Methods**
J. Zhu[1], Y. Zhang[1], N. Yao[1], D. Kong[2], Y. Tao[1], T. Qiu[1]; [1]Nanjing University of Technology, China, [2]Jiangsu Gaochun Ceramics Co. LTD., China

S3-P009 **Peptide-assisted Preparation of Silica Nano Particles and Their Application for Biomolecule Encapsulation**
K. Kato[1], M. Nishida[1], T. Nonoyama[2], T. Kinoshita[2]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Nagoya Institute of Technology, Japan

S3-P010 **Fabrication of Cell Carrier by Hydroxyapatite Nanocrystal Coating on Biodegradable Microspheres**
M. Okada, X. Liu, T. Furuzono; Kinki University, Japan

S3-P011 **Fabrication of Ceria-Boehmite Composite for Chemical Mechanical Polishing**
S. Obata[1], H. Yokoyama[1], Y. Iwata[1], K. Tateishi[1], M. Yoshida[2], O. Sakurada[2], M. Hashiba[2]; [1]Gifu Prefectural Ceramics Research Insitute, Japan, [2]Gifu University, Japan

S3-P012 **The Effect of Temperature on the Synthesis of Nano- whiskers of Calcium Mephosphate by Chemical Precipitation Methods**
N. Yao[1], Y. Zhang[1], J. Zhu[1], D. Kong[2], Z. Pan[1], T. Qiu[1]; [1]Nanjing University of Technology, China, [2]Jiangsu Gaochun Ceramics Co. LTD., China

S3-P013 **Mechanochemical Stabilization of Nanocrytalline the $(ZrO_2)_{0.97}$ $(Y_20_3)_{0.03}$ Solid Solution from Pure Oxides**
N. M. Rendtorff[1,2], G. Suarez[1,2], E. F. Aglietti[1,2]; [1]Centro de Tecnología de Recursos Minerales y Cerámica, Argentina, [2]Universidad Nacional de La Plata, Argentina

S3-P014 **The Role of Hydrogen on Silicon Nitride Prepared by Self-propagating High-temperature Synthesis**
M. Xia[1], C. Ge[1,2], Q. Yan[2], Y. Xu[1]; [1]Southwest Jiaotong University, China, [2]University of Science and Technology Beijing, China

S3-P015 **Synthesis of SiC Nanowires and Nanotubes Sheathed with BN**
T. Taguchi, N. Igawa, S. Shamoto; Japan Atomic Energy Agency, Japan

S3-P016 **Fabrication and Evaluation of $PbTiO_3$ Nanocrystal Array on Atomically Flat Sapphire**
T. Nishida[1], Y. Yoneda[2], K. Tamura[2], H. Kimura[3], M. Horita[1], K. Asahi[1], Y. Ishikawa[1], Y. Uraoka[1,4]; [1]Nara Institut of Science Technology, Japan, [2]JAEA, Japan, [3]National Institute for Materials Science, Japan, [4]CREST, Japan

S3-P017 **Fabrication of SOFC Composed of $LaGaO_3$ Based Solid Electrolyte and Ceria Based Buffer Layer by EPD**
H. T. Suzuki[1,2], T. Uchikoshi[2], K. Kobayashi[2], T. S. Suzuki[2], K. Furuya[3], M. Matsuda[4], Y. Sakka[2], F. Munakata[1]; [1]Tokyo City University, Japan, [2]National Institute for Materials Science , Japan, [3]AGC Seimi Chemical Co., Ltd., Japan, [4]Kumamoto University, Japan

S3-P018 **Plasma Processed Nanosize Powders of Refractory Compounds for Obtaining of Fine-Grained Advanced Ceramics**
I. Zalite[1], J. Grabis[1], E. Palcevskis[2], M. Herrmann[3]; [1]The Riga Technical University, Latvia, [2]"Plasma & Ceramic Technologies" Ltd., Latvia, [3]The Fraunhofer Institute for Ceramic Technologies and Systems, Germany

Symposium 3

S3-P019 **Preparation of Alumina Nanoparticles by Pulsed Wire Discharge in Water**
Y. Tokoi[1], Y. Izuari[2], T. Orikawa[2], T. Suzuki[2], T. Nakayama[2], H. Suematsu[2], K. Niihara[2]; [1]Nagaoka National College of Technology, Japan, [2]Nagaoka University of Technology, Japan

S3-P020 **Morphology and Properties of (Ba, Sr, Ca)Titanates Synthesized by Microwave-Assisted Hydrothermal Method**
A. E. Souza[1,2], G. T. A. Santos[1,2], R. A. Silva[1,2], M. L. Moreira[2], D. P. Volante[2,3], S. R. Teixeira[1,2], E. Longo[2,3]; [1]Universidade Estadual Paulista, Brazil, [2]Instituto Nacional de Ciência e Tecnologia dos Materiais em Nanotecnologia, Brazil, [3]Universidade Estadual Paulista, Brazil

S3-P021 **Synthesis and Evaluation of Barium Titanate by Rotary-Hydrothermal Process**
Y. Takamatsu[1], M. Sato[2], A. Nakahira[1]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan

S3-P022 **Fabrication Factors between Suspension and Paste Composed of Ceramics / Polymer / Solvent**
Y. Hotta, K. Sato, K. Watari; National Institute of Advanced Industrial Science and Technology, Japan

S3-P023 **PCL/Clay Nanocomposites Prepared by Ring-Opening Polymerization**
L.-H. Perng, H.-H. Huang; Cheng Shiu University, Taiwan

S3-P024 **Integrated Composite Particles for Designing of Microstructure in Ceramic Nanocomposites**
H. Muto[1], N. Hakiri[1], K. Katagiri[2], G. Kawamura[1], A. Matsuda[1], M. Sakai[1]; [1]Toyohashi University of Technology, Japan, [2]Nagoya University, Japan

S3-P025 **Dispersion of Nanoparticles Using Novel Wet Pulverizer Utilized Supersonic Jet Flow**
T. Makino[1], K. Shuzenji[1], H. Hata[2], T. Morimitsu[3], T. Kato[3]; [1]Fukuoka Industrial Technology Center, Japan, [2]Kumamoto University, Japan, [3]RIX Corporation, Japan

S3-P026 **Effect of Milling Process on Molding of Alumina**
T. Nagaoka[1], H. N. Yoshimura[1,2], K. Sato[1], Y. Hotta[1], H. Kita[1]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Federal University of ABC, Brazil

S3-P027 **The Effect of Particle Size Distribution on Strength and Density Uniformity of Gel-Cast Green Body**
K. Yoshino, T. Shirai, J. Tuchimoto, M. Fuji; Nagoya Institute of Technology, Japan

S3-P028 **Electrophoretic Deposition and Fixing of Natural Zeolite Particles on Metal Substrate**
S. Hayashi, R. Kusamizu, S. Fukagawa, F. Kagaya; Akita University, Japan

S3-P029 **Synthesis of Mullite Powder from Diphasic Xerogels in Spark Plasma Sintering System**
Y. Wang, Z. Fu, Y. Yang, W. Wang, H. Wang, J. Zhang; Wuhan University of Technology, China

S3-P030 **Phase Transformation and Characterization of $Zn_2Ti_3O_8$ Nanocrystallite Powders Prepared by a Hydrothermal Process**
C.-L. Wang[1], K.-M. Chang[1], M.-C. Wang[2], H.-H. Ko[2], D.-T. Ray[3], H.-H. Huang[4]; [1]National Kaohsiung University of Applied Sciences, Taiwan, [2]Kaohsiung Medical University, Taiwan, [3]National Cheng Kung University, Taiwan, [4]Cheng Shiu University, Taiwan

S3-P031 **Preparation of NiAl Nanosized Powders by a Pulse Wire Discharge Process**
T. Orikawa, Y. Tokoi, T. Suzuki, T. Nakayama, H. Suematsu, K. Niihara; Nagaoka National College of Technology, Japan

S3-P032 **Adhesive Force Measurement of Cellulose Derivatives in an Aqueous System**
M. Nakanome, T. Isobe, A. Nakajima; Tokyo Institute of Technology, Japan

S3-P033 **Methyl Cellulose Bridging Between Alumina Surfaces**
K. Sato[1], H. Yilmaz[1,2], Y. Hotta[1], K. Watari[1]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Gebze Institute of Technology, Turkey

Symposium 4: Green and Smart Processing

Main Organizers
- Soshu Kirihara, Osaka University, Japan
- Kiyoshi Hirao, AIST, Japan
- Zoltan Lences, Slovak Academy of Sciences, Slovakia

Co-Organizers
- Yuji Iwamoto, Nagoya Institute of Technology, Japan
- Mohammed Es-Souni, University of Applied Sciences of Kiel , Germany
- Hai-Doo Kim, Korea Institute of Materials Science, Korea
- Yoshitake Masuda, AIST, Japan
- Toshiyuki Nishimura, NIMS, Japan
- Nitin P. Padture, The Ohio State University, USA
- Pavol Sajgalik, Slovak Academy of Sciences, Slovakia
- Dr. Di Zhang, Shanghai Jiao Tong University, China
- You Zhou, AIST, Japan

Oral Session

Wednesday, November 17

Room: 1001

9:00 - 10:30: Smart and Green Forming Process (I)

Chairs: Rainer Gadow (University of Stuttgart, Germany) and Soshu Kirihara (Osaka University, Japan)

9:00 - 9:30
S4-001 **Novel Nitride Ceramics with the Potential for the Bio-Applications (Invited)**
P. Šajgalík[1], M. Hnatko[1], Z. Lenčéš[1], P. Čopan[2]; [1]Slovak Academy of Sciences, Slovak Republic, [2]Slovak Technical University, Slovak Republic

9:30 - 9:45
S4-002 **Environmentally Sound Production of Thin Alumina Sheets by Aqueous Tape Casting**
J. Stiernstedt[1], G. Rossiquet[2], M. Cristea[1], E. Carlström[1]; [1]Swerea IVF, Sweden, [2]Saint-Gobain CREE, France

9:45 - 10:00
S4-003 **Building Laminated Al_2O_3 Substrates with Ti_2AlC Screen Printed Conductor Lines for High Temperature and High Power Applications**
E. Carlström[1], L. Palmpqvist[2], J. Stiernstedt[1]; [1]Swerea IVF, Sweden, [2]formerly Swerea IVF now with SCA, Sweden

10:00 - 10:15
S4-004 **Fabrication of Functionally Graded Ceramics Using a Novel Combination of Freeze Casting and Electrophoretic Deposition (EPD)**
A. Preiss, B. Su; University of Bristol, UK

10:15 - 10:30
S4-005 **Biogenic Cements from Rice Hull: Experimental and Theoretical Aspects**
F. A. Rodrigues, C. S. Shida, M. B. R. Oliveira, D. R. M. Paixão; Universidade de Mogi das Cruzes, Brazil

10:30 - 10:45 **Break**

Symposium 4

10:45 - 12:00: Smart Forming Process for 3D Structure (I)

Chairs: Pavol Sajgalik (Slovak Academy of Sciences, Slovakia) and Jingxian Zhang (Shanghai Institute of Ceramics, China)

10:45 - 11:15

S4-006 **High Velocity Suspension Flame Spraying (HVSFS) – a Promising Coating Process for the Application of Nanostructured Tribofunctional Coatings (Invited)**
R. Gadow, A. Killinger, A. Manzat; University of Stuttgart, Germany

11:15 - 11:30

S4-007 **Three-dimensional SiO_2 Surfaces Fabricated Using Nonlinear Lithography**
H. Nishiiyama[1], Y. Hirata[2], J. Nishii[1]; [1]Hokkaido University, Japan, [2]Osaka University, Japan

11:30 - 11:45

S4-008 **Thermoreversible Gelling Slurry for Solid Freeforming Fabrication**
A. Kondo, K. Kuruma, H. Abe, M. Naito; Osaka University, Japan

11:45 - 12:00

S4-009 **Development of Thermodynamic Crystals to Control Heat and Stress Flows by Using Micro Exposing Stereolithography**
S. Kirihara, Y. Uehara, S. Tasaki; Osaka University, Japan

13:15 - 14:00: Smart Forming Process for 3D Structure (II)

Chairs: Elis Carlstrom (Swerea IVF,, Sweden) and
Hideki Kita (National Institute of Advanced Industrial Science and Technology, Japan)

13:15 - 13:30

S4-010 **Fabrication of Terahertz Wave Resonators with Alumina Diamond Potonic Crystals for Frequency Amplifications in Water Solvents**
N. Ohta, T. Niki, S. Kirihara; Osaka University, Japan

13:30 - 13:45

S4-011 **Fabrication of Metarodielectric Photonic Crystals for Microwave Control**
Y. Takinami, S. Kirihara; Osaka University, Japan

13:45 - 14:00

S4-012 **Accurate Fabrication of Hydroxyapatite Bone Models with Porous Scaffold Structures by Using Stereolithography**
C. Maeda, S. Kirihara; Osaka University, Japan

14:00 - 15:00: Smart and Green Forming Process (II)

Chairs: Elis Carlstrom (Swerea IVF,, Sweden) and Hideki Kita (National Institute of Advanced Industrial Science and Technology, Japan)

14:00 - 14:15

S4-013 **Aqueous Gelcasting of Boron Carbide**
J. Zhang, D. Jiang, Z. Chen, Q. Lin; Chinese Academy of Sciences, China

14:15 - 14:30

S4-014 **Application of New Low Toxic Monomers in Gelcasting Process of Alumina Powder**
A. Szudarska[1], T. Mizerski[1], Y. Sakka[2], M. Szafran[1]; [1]Warsaw University of Technology, Poland, [2]National Institute for Materials Science, Japan

14:30 - 14:45

S4-015 **Aqueous Tape Casting of Alumina using an Emulsion of Urethane Polymer**
T. Takaishi[1], H. Inada[1], M. Sato[1], S. Sano[2], S. Kawakami[2]; [1]Kyoto Municipal Industrial Research Institute, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

14:45 - 15:00
S4-016 **High Efficient Grinding Wheels for Machining Sapphire**
K. Matsumaru[1], Y. Imai[1], A. Takata[2], K. Ishizaki[1]; [1]Nagaoka University of Technology, Japan, [2]Nano-TEM Co., Ltd., Japan

15:00 - 15:15 **Break**

15:15 - 17:15: Stereo Fabric Forming Process

Chairs: Zoltan Lences (Slovak Academy of Sciences, Slovakia) and
You Zhou (National Institute of Advanced Industrial Science and Technology, Japan)

15:15 - 15:30
S4-017 **Stereo Fabric Modeling Technology in Manufacturing of Ceramics (Invited)**
H. Kita, H. Hyuga, T. Nagaoka, N. Kondo; National Institute of Advanced Industrial Science and Technology, Japan

15:30 - 15:45
S4-018 **Stereo Fabric Modeling Technology for Semiconductor Production Equipment**
N. Shino; Stereo Fabric Research Association, Japan

15:45 - 16:00
S4-019 **Joining of SiC Based Ceramics by a Reaction Sintering Technique**
T. Ide[1], H. Hyuga[2], H. Kita[2]; [1]Stereo Fabric Research Association, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

16:00 - 16:15
S4-020 **Low Temperature Joining Process for Carbide Ceramics**
K. Sekine[1], T. Kumazawa[2], H. Hyuga[3], H. Kita[3]; [1]Stereo Fabric Research Association, Japan, [2]Mino Ceramic Co.,Ltd., Japan, [3]National Institute of Advanced Industrial Science and Technology, Japan

16:15 - 16:30
S4-021 **Development of Joining Technique of Alumina Ceramics Using Reaction Bonding Aluminum Oxide Materials**
Y. Izutsu[1], H. Miyazaki[2], N. Kondo[2], H. Hyuga[2], H. Kita[2]; [1]Stereo Fabric Reserch Association, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

16:30 - 16:45
S4-022 **Development of Insulated and Lightened Furnace Equipments for Molten Aluminum by Stereo Fabric Modelling Technology**
I. Himoto[1], T. Nagaoka[2], H. Kita[2]; [1]Stereo Fabric Research Association, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

16:45 - 17:00
S4-023 **Microwave Local Heating of Silicon Nitride for Joining**
N. Kondo, H. Hyuga, H. Kita, K. Hirao; National Institute of Advanced Industrial Science and Technology, Japan

17:00 - 17:15
S4-024 **Continuous Laser Furnace for Surface Processing of Ceramics and Glass**
V. V. Lennikov, I. de Francisco, L. C. Estepa, G. F. de la Fuente; Instituto de Ciencia de Materiales de Aragón, Spain

Symposium 4

Thursday, November 18

9:00 - 10:30: Smart Processing for Functional Ceramics

Chairs: Christian Kaps (Bauhaus-University Weimar, Germany) and Koji Inoue (Mie Industrial Research Institute, Japan)

9:00 - 9:15
S4-025 **Oxygen Storaging Behaviour of the Perovskite Ceramic $(Ca_{0.5}Sr_{0.5})(Mn_{0.5}Fe_{0.5})O_{3-\delta}$**
C. Kaps, M. Heidenreich; Bauhaus-University Weimar, Germany

9:15 - 9:30
S4-026 **Influence of Flue Gas Components on the Chemical Properties of the Ceramic Materials (Co-) $Ce_{0.8}Gd_{0.2-x}Pr_xO_{2-\delta}$**
J. Schneider[1], C. Semmler[1], C. Kaps[1], F. Schulze-Küppers[2], S. Baumann[2], W. A. Meulenberg[2]; [1]Bauhaus University Weimar, Germany, [2]Institute of Energy Research 1, Germany

9:30 - 9:45
S4-027 **SNDM Observation of Al-doped ZnO Ceramics Using Nanocomposite Particles Prepared by Mechanical Treatment**
S. Tasaki[1], J. Tatami[2], S. Kirihara[1]; [1]Osaka University, Japan, [2]Yokohama National University, Japan

9:45 - 10:00
S4-028 **Modification of Electrical Properties of Zinc Oxide by Continuous-Wave Ytterbium Fiber Laser Irradiation**
H. Kido[1], M. Takahashi[1], J. Tani[1], N. Abe[2], M. Tsukamoto[2]; [1]Osaka Municipal Technical Research Institute, Japan, [2]Osaka University, Japan

10:00 - 10:15
S4-029 **A Simple and "Green" Method for Synthesis of Nanocomposite Magnetic Particles**
Z. Swiatkowska-Warkocka, K. Kawaguchi, H. Wang, Y. Katou, N. Koshizaki; Institute of Advanced Industrial Science and Technology, Japan

10:15 - 10:30
S4-030 **Preparation of $LaSi_3N_5:Eu^{2+}$ Phosphor Powders by Combustion Synthesis**
Y. Zhou[1], Y. Yoshizawa[1], K. Hirao[1], Z. Lenčéš[2], P. Šajgalík[2]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Slovak Academy of Sciences, Slovakia

10:30 - 10:45 **Break**

10:45 - 12:00: Green and Smart Powder Processing

Chairs: Oleg Khasanov (Tomsk Polytechnic University, Russia) and
Naoki Kondo (National Institute of Advanced Industrial Science and Technology, Japan)

10:45 - 11:15
S4-031 **Luminescence of ZnO Blue Phosphor Heavy Doped MgO by Flux Reaction (Invited)**
K. Inoue[1], S. Hashimoto[2], Y. Iwamoto[2]; [1]Mie Industrial Research Institute, Japan, [2]Nagoya Institute of Technology, Japan

11:15 - 11:30
S4-032 **Methods of Friction Forces Control at Dry Powders Shape Forming**
O. Khasanov, E. Dvilis; Nano-Centre of Tomsk Polytechnic University, Russia

11:30 - 11:45
S4-033 **Rheological Behavior of Nanosized Silica Suspensions**
T. Zmigrodzki[1], A. Danelska[1], M. Leonowicz[1], Y. Sakka[2], M. Szafran[1]; [1]Warsaw University of Technology, Poland, [2]National Institute for Materials Science, Japan

11:45 - 12:00
S4-034 **Fabrication of Amorphous Alumina Particles Using the Atmospheric Non-equilibrium Plasma with the Nanosecond Pulsed Power Supply**
S. Endo[1], T. Nakayama[1], W. Jiang[1], T. Suzuki[1], H. Suematsu[1], Z. Fu[2], S. W. Lee[3], K. Niihara[1]; [1]Nagaoka University of Technology, Japan, [2]Wuhan University of Technology, China, [3]Sun Moon University, Korea

13:15 - 15:00: Green Processing for Nitride Ceramics

Chairs: Kiyoshi Hirao (National Institute of Advanced Industrial Science and Technology, Japan) and
Weiwu Chen (Osaka University, Japan)

13:15 - 13:45
S4-035 **Porous Silicon Nitride and Sialon Prepared by Reaction Sintering Method (Invited)**
H.-D. Kim; Korea Institute of Materials Science, Korea

13:45 - 14:00
S4-036 **Nitridation Behaviors of Silicon Powder Doped with Various Rare Earth Oxides**
H. Hyuga, Y. Zhou, H. Kita, K. Hirao; National Institute of Advanced Industrial Science and Technology, Japan

14:00 - 14:15
S4-037 **Formation and Densification of SiAlON Materials by Reaction Bonding and Silicothermal Reduction Routes**
Y. Rouquié, M. Jones; University of Auckland, New Zealand

14:15 - 14:30
S4-038 **Fabrication of Sintered Reaction Bonded Silicon Nitrides from Low-cost Si Powder**
D. Kusano[1], S. Adachi[1], G. Tanabe[1], H. Hyuga[2], Y. Zhou[2], K. Hirao[1,2]; [1]Japan Fine Ceramic Company Ltd., Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

14:30 - 14:45
S4-039 **Improvement in Dielectric Properties of Highly Thermal-Conductive Silicon Nitrides**
H. Miyazaki, Y. Yoshizawa, K. Hirao; National Institute of Advanced Industrial Science and Technology, Japan

14:45 - 15:00
S4-040 **Preparation and Properties of AlN Ceramic Bonded Carbon**
W. Chen[1], Y. Miyamoto[1,2], T. Matsumoto[1,2], T. Tojo[1,2]; [1]Osaka University, Japan, [2]Toyo Tanso. Co., Ltd., Japan

15:15 - 16:30: Green Processing for Powder Syntheses

Chairs: Mark Jones (University of Auckland, New Zealand) and
Kiyoshi Hirao (National Institute of Advanced Industrial Science and Technology, Japan)

15:15 - 15:30
S4-041 **Preparation of β-$Si_{6-z}Al_zO_zN_{8-z}$ (z = 1-3) by Combustion Synthesis**
X. Yi, K. Watanabe, T. Akiyama; Hokkaido University, Japan

15:30 - 15:45
S4-042 **Synthesis of Monolithic β–Sialon Powders ($Si_{6-z}Al_zO_zN_{8-z}$, Z =2-4) through Controlling the Combustion Reaction Temperature**
M. Shahien[1], M. Radwan[2], S. Kirihara[2], Y. Miyamoto[2], T. Sakurai[3]; [1]Central Metallurgical Research and Development Institute, Egypt, [2]Osaka University, Osaka, Japan, [3]ISMAN J Corporation, Think Miraikobo, Japan

15:45 - 16:00
S4-043 **Synthesis and Characterization of $BaTiO_3$ - $BaAl_2O_4$ Composite by Self-Propagating High-Temperature Synthesis Method**
S. Niyomwas, T. Sathaporn, S. Singsarothai; Prince of Songkla University, Thailand

16:00 - 16:15
S4-044 **Combustion Mode of Self-propagating High-temperature Synthesis of Ti_2AlC**
N. Nishina[1], S. Hashimoto[1], K. Hirao[2], Y. Zhou[2], H. Hyuga[2], S. Honda[1], Y. Iwamoto[1]; [1]Nagoya Institute of Technology, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

16:15 - 16:30
S4-045 **Synthesis of Eu-Doped β-SiAlON Phosphors Using Microwave Heating**
M. Hirota[1], Y. Zhou[2], Y. Yoshizawa[2], K. Hirao[2]; [1]College of Industrial Technology, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

Symposium 4

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 - 14:00

S4-P001 **Fabrication of B_4C from $Na_2B_4O_7$+Mg+C by SHS Method**
J. Guojian[1], X. Jiayue[1], Z. Hanrui[2], L. Wenlan[2]; [1]Shanghai Institute of Technology, China, [2]Chinese Academy of Sciences, China

S4-P002 **Formation of Carbide Ceramics by Carbothermal Reduction of Silica using a Microwave Heating Technique**
S. Ohashi[1], S. Hashimoto[1], S. Honda[1], Y. Iwamoto[1], K. Hirao[1,2], H. Hyuga[2]; [1]Nagoya Institute of Technology, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

S4-P003 **Preparation of $MgSiN_2$ Phosphors by Combustion Synthesis**
D. Wakimoto[1,2], S. Hashimoto[1], Y. Iwamoto[1], Y. Zhou[2], K. Hirao[2]; [1]Nagoya Institute of Technology, Japan, [2]National Institute of Advanced Industrial Science & Technology, Japan

S4-P004 **Texture Development in Fe-doped Alumina Ceramics via Templated Grain Growth**
Y. Çelik, E. Suvacı; Anadolu University, Turkey

S4-P005 **Development of Silicon Nitride Based Composites Having a High Repeated Thermal Shock Resistance**
H. Hyuga[1], N. Kondo[1], H. Kita[1], Y. Izutsu[2], H. Kajino[2]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Mitsui Mining & Smelting Co., Ltd., Japan

S4-P006 **Fabrication of Metal Hydride Alloys Using Autonomous Metal Hydride Actuator for Seawater Exchange in Hakodate Port**
K. Minato[1], M. Miyatake[1], S. Honmura[1], K. Matsumura[2], T. Masuda[3], Y. Goto[1], S. Asanuma[1]; [1]Hakodate National College of Technology, Japan, [2]Hokkaido Industrial Technology Center, Japan, [3]Ministry of Land, Infrastructure, Transport and Tourism, Japan

S4-P007 **Formation of New Alumina by Shearing at High Pressure**
H. Furuichi; Furuichi Laboratory, Japan

Symposium 5: Hybrid and Nano-Structured Materials

Main Organizers
- Tohru Sekino, Tohoku University, Japan
- Yoko Suyama, Shimane University, Japan
- Dileep Singh, Argonne National Laboratory, USA
- Igor L. Shabalin, The University of Salford, UK

Co-Organizers
- Fritz Aldinger, Max-Planck Institute, Germany
- Bikramjit Basu, Indian Institute of Technology Kanpur, India
- Anna Biedunkiewicz, West Pomeranian University of Technology, Poland
- Yong Ho Choa, Hanyang University, Korea
- Dominguez-Rodriguez, University of Seville, Spain
- Lian Gao, Shanghai Institute of Ceramics, China
- George Gnesin, Institute for Problems of Materials Science, Ukraine
- Yury Gogotsi, Drexel University, USA
- John Halloran, University of Michigan, USA
- Junichi Hojo, Kyushu University, Japan
- Kwang Ho Kim, Pusan National University, Korea
- Walter Krenkel, University of Bayreuth, Germany
- Ashok Kumar, University of South Florida, USA
- Koji Kuraoka, Kobe University, Japan
- Takafumi Kusunose, Osaka University, Japan
- Anatoly Lanin, Scientific Institute of Atomic Energy, Russia
- Yoshitake Masuda, AIST, Japan
- Sanjay Mathur, University of Cologne, Germany
- Amiya K. Mukherjee, University of California Davis, USA
- Hiroyuki Nakamura, AIST, Japan
- Hiromi Nakano, Toyohashi University of Technology, Japan
- Tadachika Nakayama, Nagaoka University of Technology, Japan
- Roger Naslain, University of Bordeaux I, France
- Jules Routbort, Argonne National Lab, USA
- Noriko Saito, NIMS, Japan
- Mrityunjay Singh, NASA Glenn Research Center, USA
- Wei-Hsing Tuan, National Taiwan University, Taiwan
- Petr Vityaz, National Academy of Science, Belarus
- Hao Wang, Wuhan University of Technology, China
- Houzheng Wu, Loughborough University, UK
- Yanchun Zhou, Institute of Metal Research, China

Oral Session

Monday, November 15

Room: 1003

14:15 - 16:00: Nanocomposites and Multi-Dimensional Fibers/Fabrics Reinforced CMCs

Chairs: Jules Routbort (Argonne National Lab., USA) and Tohru Sekino (Tohoku University, Japan)

14:15 - 14:45
S5-001 **Hybrid Ceramic Matrix Fibrous Composites: an Overview (Invited)**
R. Naslain; University of Bordeaux, France

14:45 - 15:15
S5-002 **Hybrid Nanostructured Ceramic Matrix Composites through Solution Route (Invited)**
L. M. Manocha, S. Manocha, M. Vyas, P. M. Raole; Sardar Patel University, India

Symposium 5

15:15 - 15:30
S5-003 **Hierarchical SiC-based Ceramic Matrix Composites Reinforced with SiC Nanowires Grafted Carbon Fibers**
B. Lu, S. M. Dong, Z. Wang, X. Y. Zhang, Y. S. Ding; Chinese Academy of Sciences, China

S5-004 Cancelled

15:30 - 16:00
S5-005 **Nanoscale Plasticity in Ceramics and Semiconductors Revised (Invited)**
R. Nowak[1,2], D. Chrobak[1,2], M. Berg[3], T. Sekino[4], K. Niihara[2]; [1]Aalto University, Finland, [2]Nagaoka University of Technology, Japan, [3]Hysitron, Inc., USA, [4]Tohoku University, Japan

16:00 - 16:15 **Break**

16:15 - 18:00: Materials Design, Novel Synthesis and Processing Technology (I)

Chairs: Katherine Faber (Northwestern University, USA) and Lian Gao (Shanghai Institute of Ceramics, China)

16:15 - 16:45
S5-006 **Microreactor Synthesis Toward Rapid Developments of Nanoparticles (Invited)**
H. Nakamura[1], M. Uehara[1], H. Maeda[1,2,3]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Kyushu University, Japan, [3]Japan Science and Technology Agency, Japan

16:45 - 17:15
S5-007 **Nano-Ceramics as Additives for Heat Transfer Fluids (Invited)**
J. L. Routbort, D. Singh, E. Timofeeva, W. Yu, D. France; Argonne National Laboratory, USA

17:15 - 17:30
S5-008 **Development of Automatic Combinatorial System for Synthesis of Nanoparticles Using Microreactors**
K. Watanabe[1], H. Ozono[1], K. Yamashita[2], M. Uehara[2], H. Nakamura[2], H. Maeda[1,2,3]; [1]Kyushu University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Japan Science and Technology Agency, Japan

17:30 - 17:45
S5-009 **Property Control of Semiconductor Nanocrystals by Controlling the Temperature Profile Using Microreactor**
C. G. Lee[1], H. Nakamura[1], M. Uehara[1], H. Maeda[1,2,3]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Kyushu University, Japan, [3]Japan Science and Technology Agency, Japan

17:45 - 18:00
S5-010 **Selective Pulsed Heating for Synthesizing Semiconductor and Metal Submicron Spheres Based on Pulsed Laser Irradiation of Colloidal Nanoparticles**
H. Wang, A. Pyatenko, K. Kawaguchi, X. Li, Z. Swiatkowska-Warkocka, N. Koshizaki; National Institute of Advanced Industrial Science and Technology, Japan

Tuesday, November 16

Room: 1003

9:00 - 10:30: Coalescence, Growth and Sintering Behavior

Chairs: Dileep Singh (Argonne National Lab., USA) and Jing Sun (Shanghai Institute of Ceramics, China)

9:00 - 9:30
S5-011 **Application of Ultra Accelerated Quantum Chemical Molecular Dynamics to the Study of the Sintering Mechanism (Highlighted Oral)**
A. Suzuki, R. Miura, H. Tsuboi, N. Hatakeyama, A. Endou, H. Takaba, A. Miyamoto; Tohoku University, Japan

9:30 - 9:45

S5-012 **Processing and Properties of Nanostructured YSZ Ceramics Produced by Dry Pressing**

J. Binner[1], B. Vaidhyanathan[1], K. Annapoorani[1], H. Hodgson[2]; [1]Loughborough University, UK, [2]Dynamic Ceramic Ltd, Crewe, UK

9:45 - 10:00

S5-013 **Lower Sintering Temperature of Nanostructured Dense Ceramics Compacted from Dry Nanopowders Using Powerful Ultrasonic Action**

O. Khasanov[1], U. Reichel[2], E. Dvilis[1], A. Khasanov[1]; [1]Nano-Centre of Tomsk Polytechnic University, Russia, [2]Fraunhofer-Institut für Keramische Technologien und Systeme, Germany

10:00 - 10:15

S5-014 **SPS Synthesis/Consolidation of TiAlN-Based Nano-Composite Reinforced with Homogeneously Distributed Cubic Aluminum Nitride Nanocrystalls**

B. Hanna[1,2], V. Oleg[1], S. Yoshio[1], S. Liap[3], T. Y. Kwang[3], M. Jan[3]; [1]National Institute for Materials Science, Japan, [2]NASU, Ukraine, [3]Nanyang Technological University, Singapore

10:15 - 10:30

S5-015 **Study on Alkali and Alkaline Earth Cations Stablized Sialon Translucent Ceramics**

H. Wang[1], Z. Yang[1], W. Wang, Z. Fu[1], S.-W. Lee[2], K. Niihara[3]; [1]Wuhan University of Technology, China, [2]SunMoon University, Korea, [3]Nagaoka University of Technology, Japan

10:45 - 11:45: Organic-Inorganic Hybrids (I)

Chairs: Yoko Suyama (Shimane University, Japan) and Ryo Sasai (Shimane University, Japan)

10:45 - 11:15

S5-016 **Preparation of Silica/Modified Poly(Vinyl Alcohol) Organic-Inorganic Hybrid Gas Barrier Films by Sol-Gel Method with Microwave Irradiation (Invited)**

K. Kuraoka, H. Ashihara, A. Hashimoto; Kobe University, Japan

11:15-11:30

S5-017 **Processing and Dielectric Properties of Polyhedral Oligomeric Silsesquioxane (POSS)-Based Nanocomposites**

M.-J. Pan, E. P. Gorzkowski; U.S. Naval Research Laboratory, USA

11:30-11:45

S5-018 **Processes and Applications of Silicon Carbide Nanocomposite Fibers**

D.-G. Shin[1], K.-Y. Cho[1], D.-H. Riu[2]; [1]Korea Institute of Ceramic Engineering and Technology, Korea, [2]Seoul National University of Technology, Korea

14:15 - 16:00: Organic-Inorganic Hybrids (II)

Chairs: Koji Kuraoka (Kobe University, Japan) and Lalit Mohan Manocha (Sardar Patel University, India)

14:15 - 14:45

S5-019 **Molecular Sensing Ability of Layered Inorganic/Luminous Organic Nano-hybrid Solid Materials (Invited)**

R. Sasai; Shimane University, Japan

14:45 - 15:15

S5-020 **Preparation of a Novel Core/shell Structured TiO_2-Polyaniline Nanocomposite and its Application to Solar Cell**

S. Yang, Y. Ishikawa, Q. Feng; Kagawa University, Japan

15:15 - 15:30

S5-021 **Preparing Transparent Conductive SWNT Films Using Biomoleculars as Surfactants (Highlighted Oral)**

J. Sun, R. Wang, L. Gao; Shanghai Institute of Ceramics, CAS, China

Symposium 5

15:30 - 15:45
S5-022 **Self-Assembled Linear Bundles of BN Nanosheets in Polysiloxane Film under Alternating DC Electric Field**
H.-B. Cho, T. Nakayama, H. Suematsu, S. Tanaka, T. Suzuki, W. Jiang, K. Niihara; Nagaoka University of Technology, Japan

15:45 - 16:00
S5-023 **Effect of Type of Nanoclay on Thermal Properties of Polyethylene Terephthalate/Clay Nanocomposites**
M. Parvinzadeh[1], S. Moradian[2], A. Rashidi[1], M.-E. Yazdanshenas[1]; [1]Islamic Azad University, Iran, [2]Amirkabir University of Technology, Iran

16:00 - 16:15 **Break**

16:15 - 18:00: Materials Design, Novel Synthesis and Processing Technology (II)

Chairs: Hiroyuki Nakamura (National Institute of Advanced Industrial Science and Technology, Japan) and Laszlo A. Gomze (University of Miskolc, Hungary)

16:15 - 16:45
S5-024 **Shape-Controlled Synthesis of Inorganic Nanostructures (Invited)**
L. Gao; Shanghai Institute of Ceramics, CAS, China

16:45 - 17:15
S5-025 **Environmentally Conscious SiC Ceramics Obtained from Natural Precursors: Recent Developments and Challenges (Invited)**
J. Ramírez-Rico[1], J. M. Fernandez[1], M. Singh[2]; [1]Universidad de Sevilla-CSIC, Spain, [2]Ohio Aerospace Institute, USA

17:15 - 17:45
S5-026 **Graphite-Copper Composites from Natural and Synthetic Scaffolds (Invited)**
K. T. Faber, M. T. Johnson, A. E. Sall; Northwestern University, USA

17:45 - 18:00
S5-027 **Preparation of BN Nano-film Coated IVa Group Transition Metal Boride Composite Particles by a Novel Solid State Reaction Route**
J. Zou[1,2], G.-J. Zhang[1]; [1]Shanghai Institute of Ceramics, China, [2]Chinese Academy of Sciences, China

Wednesday, November 17

Room: 1003

9:00 - 10:15: Hetero-Modulus Materials

Chairs: Igor L. Shabalin (The University of Salford, UK) and Jingyang Wang (Institute of Metal Research, China)

9:00 - 9:30
S5-028 **Hetero Modulus Alumina Matrix Nanoceramics and CMCs with Extreme Dynamic Strength (Invited)**
L. A. Gömze[1], L. N. Gömze[2]; [1]University of Miskolc, Hungary, [2]IGREX Engineering Service Ltd., Hungary

9:30 - 10:00
S5-029 **Glass-Ceramic/Carbon Nanotube Composites: Processing, Properties and Influence of Nanotube Alignment (Invited)**
R. I. Todd, G. Otieno, A. Mukhopadhyay, M. L. H. Green, N. Grobert; University of Oxford, UK

10:00 - 10:15
S5-030 **Reaction Hot-Pressing and Property-Composition Relationships of Modified Sialon – Boron Nitride Hetero-Modulus Ceramics**
W. Yu[1], S. Igor[1], Z. Lingfei[2], Z. Valeriy[3]; [1]University of Salford, UK, [2]University of Aveiro, Portugal, [3]Ural State Technical University, Russia

10:15 - 10:30 **Break**

10:30 - 12:00: Mechanical Properties, Fracture and Deformation Mechanics (I)

Chairs: Wei-Hsing Tuan (National Taiwan University, Taiwan) and Richard Todd (University of Oxford, UK)

10:30 - 11:00

S5-031 **Ductile Deformation in Alumina and Alumina Nanocomposites under Pseudo-Static to High Strain Rate Condition (Invited)**
S. Ghosh, H. Wu; Loughborough Univeristy, UK

11:00 - 11:30

S5-032 **Design, Structure and Properties of Nano-layered Damage Tolerant Transition-metal Carbides and Nitrides (Invited)**
J. Wang, Y. Zhou; Chinese Academy of Sciences, China

11:30 - 11:45

S5-033 **A Revolution of Nanolayered MAX Phases Ceramics: Shell-like Design**
C. Hu, Y. Sakka, H. Tanaka, T. Nishimura, S. Grasso; National Institute for Materials Science, Japan

11:45 - 12:00

S5-034 **Light-Weight B_4C/BN-Based Superhard and Highly Shock-Energy Dissipative Nano-Composites via SPS Synthesis/Consolidation**
V. Oleg[1,2,3], B. Hanna[1,3], S. Yoshio[1], S. Liap[2], T. Y. Kwang[2], M. Jan[2]; [1]National Institute for Materials Science, Japan, [2]Nanyang Technological University, Singapore, [3]NASU, Ukraine

13:15 - 15:15: Mechanical Properties, Fracture and Deformation Mechanics (II)

Chairs: Houzheng Wu (Loughborough University, UK) and Jun-ichi Matsushita (Tokai University, Japan)

13:15 - 13:45

S5-035 **Bio-inspired Design of Toughening Agent (Invited)**
W.-H. Tuan; National Taiwan University, Taiwan

13:45 - 14:15

S5-036 **Hybridization of Cu by Direct Bonding to Oxidized Silicon Nitride (Highlighted Oral)**
S.-I. Tanaka; Tohoku University, Japan

14:15 - 14:45

S5-037 **Nano-mechanical Characterization of TiAlN and its Multilayer Thin Films (Highlighted Oral)**
R. Ramaseshan, F. Jose, S. Dash, A. K. Tyagi; IGCAR, India

14:45 - 15:00

S5-038 **AlN Substrate with a Thick Oxide Layer of High Interfacial Adhesion Strength**
K. Hirayama, J. Imai, M. Sato, N. Hashimoto; Panasonic Electric Works Co., Ltd., Japan

15:00 - 15:15

S5-039 **Electrodeposition and Characterization of Ni/$Ti_3Si(Al)C_2$ Composite Coatings**
Y. Liang[1,2], X. Liu[2], Y. Zhou[1]; [1]Chinese Academy of Sciences, China, [2]Northeastern University, China

15:15 - 15:30 **Break**

15:30 - 17:15: Low-dimensional and Anisotropic Nanomaterials

Chairs: Sanjay Mathur (University of Cologne, Germany) and Yanfeng Gao (Shanghai Institute of Ceramics, China)

15:30 - 16:00

S5-040 **Preparation, Characterization and Application of One-dimensional Transition Metal Oxide Nanostructures (Invited)**
Y. Dai, W. Chen; Wuhan University of Technology, China

16:00 - 16:15

S5-041 **Fabrication of ZnO Nanosheet and In_2O_3 Nanorod Films Via the Pyrolysis Reaction of Those Intermediate Compounds by Chemical Bath Deposition**
E. Hosono[1], T. Saito[1], S. Fujihara[2], H. Zhou[1]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Keio University, Japan

Symposium 5

16:15 - 16:30
S5-042 **Nanoparticles Loaded TiO_2 Nanotubes Synthesis by UV Light Induced Reduction Reaction**
D. J. Park, T. Sekino, J.-Y. Kim, S. Tsukuda, S.-I. Tanaka; Tohoku University, Japan

16:30 - 16:45
S5-043 **The Synthesis and Characterization of Ultra-long Bismuth Telluride Nanotubes by Electrospinning and Galvanic Displacement**
K.-J. Lee[1], H. Song[1], H. Jung[2], N. V. Myung[2], Y.-H. Choa[1]; [1]Hanyang University, Korea, [2]University of California-Riverside, USA

16:45 - 17:00
S5-044 **CeO_2 Nanoparticles Deposited on Carbon Nanotubes**
G. Zheng, R. Nomiyama, H. Sano, Y. Uchiyama; Nagasaki University, Japan

17:00 - 17:15
S5-045 **Synthesis of Nitrogen-doped CNTs and their Nanohybrids with Chemically-prepared Au Nanoparticles**
T. Sekino[1], S. Y. Moon[1], T. Kusunose[2], S.-I. Tanaka[1]; [1]Tohoku University, Japan, [2]Kagawa University, Japan

Thursday, November 18

Room: 1003

9:00 - 10:30: Properties and Multi-Functions in Hybrid and Nanostructured Materials (I)

Chairs: Ivar Reimanis (Colorado School of Mines, USA) and Ying Dai (Wuhan University of Technology, China)

9:00 - 9:30
S5-046 **Advanced Morphology Characterization of Nano-Structured Materials (Invited)**
S. S. Ray; Council for Scientific and Industrial Research, South Africa

9:30 - 10:00
S5-047 **Metal Oxide Nanowires: Growth, Applications and Devices (Invited)**
S. Mathur[1], S. Barth[1], F. Hernández-Ramírez[2], J. D. Prades[2], A. Romano-Rodriguez[2], J. R. Morante[2]; [1]University of Cologne, Germany, [2]University of Barcelona, Spain

10:00 - 10:15
S5-048 **Preparation of Carbon Quantum Dots with Tunable Photoluminescence by Rapid Laser Passivation in Ordinary Organic Solvents**
X. Li, H. Wang, Y. Shimizu, A. Pyatenko, K. Kawaguchi, N. Koshizaki; National Institute of Advanced Industrial Science and Technology, Japan

10:15 - 10:30
S5-049 **The Fabrication of 0-D and 1-D Nanomaterials for Nanodevices Using Lipid Nanotubes**
Y.-G. Han, M. Aoyagi, M. Asakawa, T. Shimizu; National Institute of Advanced Industrial Science and Technology, Japan

10:30 - 10:45 **Break**

10:45 - 12:00: Properties and Multi-Functions in Hybrid and Nanostructured Materials (II)

Chairs: Suprakas Sinha Ray (National Centre Nanostructured Materials, South Aflica) and Rajagopalan Ramaseshan (Indira Gandhi Centre for Atomic Research, India)

10:45 - 11:00
S5-050 **Solution-phase Processing of Nanostructured VO_2 Thin Films for Smart Windows**
Y. F. Gao, L. Kang, Z. Zhang, C. Cao, Z. Chen, J. Du, H. Luo; Shanghai Institute of Ceramics, CAS, China

11:00 - 11:15
S5-051 **The Thin-Film Transducers of Pressure and Temperature**
K. Svetlana; Ural Federal University, Russia

11:15 - 11:30
S5-052 **Electrochemical Performance of TiO_2 Synthesized via Mechanochemical Milling**
P. Xiao, M. A. Thein, M. O. Lai, L. Lu; National University of Singapore, Singapore

11:30 - 11:45
S5-053 **Electrochemical Properties for $Mo_xV_{3-x}O_7$/MWNTs Nanocomposites**
Q. Zhu[1,2], S. Hu[1], W. Jin[1], H. Wen[1], W. Chen[1,2], G. Zakharova[3]; [1]Wuhan University of Technology, China, [2]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, China, [3]Russian Academy of Science, Russia

11:45-12:00
S5-054 **Nanoscale Mechanical Property Characterization of Ceramics and Ceramic Tribofilms**
N. Fujisawa; Hysitron, Inc., USA

13:15 - 15:00: Properties and Multi-Functions in Hybrid and Nanostructured Materials (III)

Chairs: Yong-Ho Choa (Hanyang University, Korea) and Makoto Nanko (Nagaoka University of Technology, Japan)

13:15 - 13:45
S5-055 **Nanoscale Magnetic Measurements in Doped Oxides (Invited)**
I. Reimanis[1], J. White[1], G. Coors[2], J. O'Brien[3]; [1]Colorado School of Mines, USA, [2]Ceramatec Inc., USA, [3]Quantum Design, USA

13:45 - 14:00
S5-056 **Preparation of $Nd_2Fe_{14}B$ Nanoparticles under Femtosecond Laser Ablation in Liquid**
T. Yamamoto[1], Y. Shimotsuma[1], M. Sakakura[1], M. Nishi[1], K. Miura[1], K. Hirao[1], M. Sagawa[2]; [1]Kyoto University, Japan, [2]Intermetallics CO., LTD., Japan

14:00 - 14:15
S5-057 **Reversible Control in Surface Plasmon Resonance Wavelength of Gold Nanoparticles by Using Polydimethylsiloxane (PDMS)**
Y. Tsutsui[1], H. Fudouzi[2], T. Hayakawa[1], M. Nogami[1]; [1]Nagoya Institute of Technology, Japan, [2]National Institute for Materials Science, Japan

14:15 - 14:30
S5-058 **Nanostructure-Controlled Plasmonic Nanocomposite Films Prepared by Aerosol Deposition**
J.-H. Park, J. Akedo; National Institute of Advanced Industrial Science and Technology, Japan

14:30 - 14:45
S5-059 **3D Copper Nanostructures for Plasmonic Detection of Molecules**
J.-C. Valmalette[1,2], J. Julien Romann[1,2], K. Sato[3], S. Ohara[3]; [1]Université du Sud Toulon Var, France, [2]CNRS, France, [3]Osaka University, Japan

14:45-15:00
S5-060 **Nano Glass Flakes with Inherent Colour**
S. J. Brigham, E. Golden; Glassflake Ltd, Australia

15:00 - 15:15 **Break**

15:15 - 16:15: Properties and Multi-Functions in Hybrid and Nanostructured Materials (IV)

Chair: Tadachika Nakayama (Nagaoka University of Technology, Japan)

15:15 - 15:30
S5-061 **Study of Structural and Dielectric Properties of Co Doped Copper Ferrite Nanoparticles**
A. Azam, M. S. Ansari, A. H. Naqvi; Aligarh Muslim University, India

15:30- 15:45
S5-062 **The Behavior of Negative Permittivity and Negative Permeability in Bulk Fe-Al_2O_3 Nanocomposites Prepared by Selective Reduction**
R. Fan, Z. Zhang, Z. Shi, M. Gao, J. Guo; Shandong University, China

Symposium 5

15:45 - 16:00

S5-063 **Crack-Healing Function of Metal/Al_2O_3 Hybrid Materials**
M. Nanko; Nagaoka University of Technology, Japan

16:00-16:15

S5-064 **Characterization of Hdroxyapatite with Titanium Nonoxide Ultrafine Powder by using Planet Type Ball Milling**
J. Matsushita[1], Y. Hayakawa[1], K. Ishiwata[1], R. Takahashi[1], T. Takehana[1], Y. Matsushita[2]; [1]Tokai University, Japan, [2]Kanagawa Dental College, Japan

Poster Session

Monday, November 15

Room: Event Hall

12:00 - 14:00

S5-P001 **Preparation and Property Control of ZnO Nanoparticles by Two Step Process**
Y. Sakai[1], C-G. Lee[2], M. Uehara[2], H. Nakamura[2], H. Maeda[1,2,3]; [1]Kyushu University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Japan Science and Technology Agency, Japan

S5-P002 **Crystal Structures of Solid Solution $(Ba_{1-x}Ca_x)(Sc_{1/2}Nb_{1/2})O_3$ System**
H. Nakano[1], T. Ida[2], M. Takemoto[3], H. Ikawa[3]; [1]Toyohasi University of Technology, Japan, [2]Nagoya Institute of Technology, Japan, [3]Kanagawa Institute of Technology, Japan

S5-P003 **Synthesis and Characterization of Novel (Na,K)-Nb Double Metal Ethoxides**
K. Kanetuki, Y. Suyama; Shimane University, Japan

S5-P004 **Hybride, Nanostructurized Materials of Special Designation on the Basis of Silicon Dioxide**
Z. A. Mansurov, N. N. Mofa, T. A. Shabanova; Al-Farabi Kazakh National University, Kazakhstan

S5-P005 **Determination of Kinetic Effect on Particle Size and Concentration by Microreactor**
L. Zhang[1], H. Nakamura[1], C. Lee[1], M. Uehara[1], H. Maeda[1,2,3]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Kyushu University, Japan, [3]Japan Science and Technology Agency, Japan

S5-P006 **The Viscoelasticity Measurement of the Various Shaped Ceramics Nanoparticle Dispersion Slurry**
S. Takamaru[1], T. Nakayama[1], T. Takahashi[1], H. D. Kim[1], J. Yoshimura[1], T. Suzuki[1], H. Suematsu[1], Z. Fu[2], S. W. Lee[3], K. Niihara[1]; [1]Nagaoka University of Technology, Japan, [2]Wuhan University of Technology, China, [3]Sun Moon University, Korea

S5-P007 **Synthesis of Al_2O_3-SiC Nanocomposites Using the Nano Slurry which Homogeneous Dispersion by Beads Mill**
S. Amarume[1], T. Nakayama[1], K. Niihara[1], H. D. Kim[1], Y. Ohba[1], T. Suzuki[1], H. Suematsu[1], Z. Fu[2], S. W. Lee[3]; [1]Nagaoka University of Technology, Japan, [2]Wuhan University of Technology, China, [3]Sun Moon University, Korea

S5-P008 **Phase and Morphology Control of ZnS Nanocrystals by Temperature Profile**
Y. Nakamura[1], S. Sasaki[1], K. Watanabe[1], C.-G. Lee[2], M. Uehara[2], H. Nakamura[2], H. Maeda[1,2,3]; [1]Kyushu University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Japan Science and Technology Agency, Japan

S5-P009 **Formation of $CuAlO_2$ Thin Films by Ultrasonic Spray Pyrolysis**
I. Suhariadi[1,2], Z. Lockman[1], S. D. Hutagalung[1], K. Abraha[2], A. Matsuda[3]; [1]Universiti Sains Malaysia, Malaysia, [2]Gadjah Mada University, Indonesia, [3]Toyohashyi University of Technology, Japan

S5-P010 **Reaction Synthesis of Ti_3SiC_2 Phase in Plasma Sprayed Coating**
Y. Chen[1,2], V. Pasumarthi[2], S. R. Bakshi[2], A. Agarwal[2]; [1]Soochow University, China, [2]Florida International University, USA

S5-P011 **Synthesis and Properties of Ti_2AlN MAX-phase Coatings by a Hybrid Coating System**
Q. Wang, K. Kim; Pusan National University, Korea

S5-P012 **The Influence of Ferrocene Derivates on Drying of Alkyd Coatings**
D. Vesely, A. Kalendova, P. Nemec; University of Pardubice, Czech Republic

S5-P013 **The Influence of Alternating Constituent on Properties Formation of Ceramic Materials on TiN Basis During Electro-Discharge Sintering**
O. V. Derev'yanko[1], O. I. Raichenko[1], I. L. Shabalin[2], V. G. Kolesnichenko[1], M. V. Zamula[1], O. B. Zgalat–Lozynskyy[1]; [1]Frantsevych Institute for Problems of Materials Science of NASU, Ukraine, [2]The University of Salford, UK

S5-P014 **Improvement of Bonding Strength between Ceramic and Titanium by Supersonic Plasma Spray Coating**
P. Zhang, Z. C. Zhang, J. F. Yang, Z. H. Han; Xi'an Jiaotong University, China

S5-P015 **Development of Novel Fabrication Processes for the Reaction Bonded Silicon Carbide Hot Gas Filter with a High Strength**
S.-W. Park, K.-S. Cho, C.-S. Kim; Korea Institute of Science and Technology, Korea

S5-P016 **Spark-Plasma-Sintering (SPS) of Tungsten Carbide and Titanium Carbonitride Nanopowders**
P. Angerer[1], L. G. Yu[2], K. A. Khor[2], I. Zalite[3]; [1]Centre of Electrochemical Surface Technology, Austria, [2]Nanyang Technological University, Singapore, [3]Riga Technical University, Latvia

S5-P017 **Transparent α-alumina Consolidated with Nanostructure**
N. Miyagi[1], Y. Kodera[1], M. Ohyanagi[1], Z. A. Munir[2]; [1]Ryukoku University, Japan, [2]University of California, Davis, USA

S5-P018 **The Comparison of the Formability on the Fine Patterned Oxide Sintered Body Using the Micro Mold**
H. D. Kim[1], T. Nakayama[2], M. S. Lee[1], K. Imaki[2], T. Yoshimura[3], T. Suzuki[2], H. Suematsu[2], K. Niihara[2]; [1]Korea Institute of Industrial Technology, Korea, [2]Nagaoka University of Technology, Japan, [3]Osaka Prefecture University, Japan

S5-P019 **Preparation of Polyethylene Terephthalate/Silica Nanocomposite Using Hydrophilic or Hydrophobic Nanosilica**
M. Parvinzadeh[1], S. Moradian[2], A. Rashidi[1], M.-E. Yazdanshenas[1]; [1]Islamic Azad University, Iran, [2]Amirkabir University of Technology, Iran

S5-P020 **Surface Characterization of Polyethylene Terephthalate/Clay Nanocomposites**
M. Parvinzadeh[1], S. Moradian[2], A. Rashidi[1], M.-E. Yazdanshenas[1]; [1]Islamic Azad University, Iran, [2]Amirkabir University of Technology, Iran

S5-P021 **Reduction of Electrical Resistance of Synthetic Fibers Using Micro and Nano Silicone Coating**
M. Parvinzadeh; Islamic Azad University, Iran

S5-P022 **Effect of Inorganic Nano Fillers in Bio Degradable Thermoplastic Cornstarch (TPS)/LDPE Hybrids**
S. S. Kim[1], A. Arena[1], C. Poolman[1], B. H. Kim[2]; [1]Rochester Institute of Technology, USA, [2]Chonbuk National University, Korea

S5-P023 **Dye-doped Natural Organic-inorganic Hybrid Materials on Glass Substrates**
N. Kitazawa, W. Aroonjaeng, M. Aono, Y. Watanabe; National Defense Academy, Japan

S5-P024 **Preparation and Characterization of PMMA-Ceramic Composite Materials**
K. Gul; University of Peshawar, Pakistan

S5-P025 **Fabrication and Dielectric Properties of AlN Filled Epoxy Nano-Composites**
N. Gao[1], X. Yu[1], H. Jin[1,2], B. He[1]; [1]Xi'an Jiaotong University, China, [2]Far East Holding Group Co. Ltd., China

S5-P026 **Composition - Property Correlations of Cordierite/Mullite/Alumina Ceramic Composites Prepared from Non-Standard Powders**
Z. Lingfei[1], S. Olhero[1], S. Igor[2], J. M. F. Ferreira[1]; [1]University of Aveiro, Portugal, [2]University of Salford, UK

Symposium 5

S5-P027 **Microstructure – Mechanical Property Correlations of Cordierite/Mullite foam by Tomography and Finite Element Model**
L. Zang[1], L. Courtois[2], E. Maire[2], A. Charmetant[2], T. Zhang[2], J. M. Ferreira[1]; [1]University of Aveiro, Portugal, [2]MATEIS lab, France

S5-P028 **Synthesis and Characterization of Zirconia-Alumina Nanocomposites Obtained by Spark Plasma Sintering**
C. Ghitulica[1], B. S. Vasile[1], E. Andronescu[1], E. Vasile[2], G. Voicu[1], O. R. Vasile[1]; [1]University POLITEHNICA of Bucharest, Romania, [2]Metav C.D., Romania

S5-P029 **Influences of Crack Size and Ni Volume Fraction on Crack-Healing of Nano-Ni /Al_2O_3 Hybrid Materials**
D. Maruoka, M. Nanko; Nagaoka University of Technology, Japan

S5-P030 **Fabrication and Characterization of Metal Oxide Nanocrystal/Activated Carbon Nanocomposites**
C. Mori[1], K. Teshima[1], H. Kamikawa[2], S. H. Lee[1], S. Oishi[1]; [1]Shinshu University, Japan, [2]YAMAHA MOTOR CO., LTD., Japan

S5-P031 **Microstructure and Mechanical Properties of Acid-Treated Carbon Nanofiber/Alumina Composites**
N. Ueda[1], T. Yamakami[1], T. Yamaguchi[1], K. Kitajima[1], T. Nakanishi[2], F. Miyaji[2], M. Endo[1], N. Saito[1], S. Taruta[1]; [1]Shinshu University, Japan, [2]Japan Medical Materials Co., Japan

S5-P032 **Material Properties and Machinability Evaluation of Al_2O_3/cnt Hybrid Composites for Micro EDM**
H.-S. Tak[1], D.-S. Choi[2], S.-S. Jeong[3], D.-Y. Lee[3], M.-C. Kang[1]; [1]Pusan National University, Korea, [2]KIMM , Korea, [3]Applied Carbon Nano Technology Co., LTD, Korea

S5-P033 **Formation of 3D Nanonetwork in Different Type of CNT-dispersed ZrO_2-based Nanocomposites and their Electrical Properties**
T. Sekino[1], T. Kusunose[2], H. Wang[3], Z. Fu[3], K. Niihara[3]; [1]Tohoku University, Japan, [2]Kagawa University, Japan, [3]Wuhan University of Technology, China, [4]Nagaoka University of Technology, Japan

S5-P034 **Vertically Aligned Patterning of SWCNT by Magnetic Field**
S. Cha, Y. Kim; Kwangwoon University, Korea

S5-P035 **Effective Parameters for Growing Vertically-Aligned Individual Carbon Nanotubes/Nanofibers (CNs) Using Plasma Enhanced Chemical Vapor Deposition (PECVD)**
H. W. Lee[1,2], S. Kim[2], S.-G. Kim[2]; [1]Pusan National University, Korea, [2]Massachusetts Institute of Technology, USA

S5-P036 **Characterization of Electric Transport of Field Effect Transistor with TiO_2 Nanotube Channel**
M. Ishii[1], M. Terauchi[2], T. Yoshimura[1], T. Nakayama[2], N. Fujimura[1]; [1]Osaka Prefecture University, Japan, [2]Nagaoka University of Technology, Japan

S5-P037 **The Influence of One-dimentional TiO_2 with Different Morphology on Photocatalytic Degradation of Gaseous Benzene**
J. Du[1], M. Wen[1], W. Chen[1,2], Y. Dai[1,2], C. Zhao[1,2]; [1]Wuhan University of Technology, China, [2]Advanced Technology for Materials Synthesis and Processing, China

S5-P038 **Size Dependence of Properties in Cupric Oxide Nanotubes Synthesized from Electrodeposited Copper Nanowires**
Y.-I. Lee[1], K.-J. Lee[1], N. V. Myung[2], Y.-H. Choa[1]; [1]Hanyang University, Korea, [2]University of California-Riverside, USA

S5-P039 **Optical, Mechanical and Tribological Properties of Y_2O_3, Er_2O_3 and Nd_2O_3 Doped Polycrystalline Silicon Nitride Ceramics**
B. Joshi[1], Z. Fu[2], K. Niihara[3], S. W. Lee[1]; [1]Sunmoon University, Korea, [2]Wuhan University of Technology, China, [3]Nagaoka University of Technology, Japan

S5-P040 **Characteristics of Silica Contained Y-TZP during Low-Temperature Aging**
H. Usami[1], T. Nakamura[1], H. Nishida[2], T. Sekino[3], H. Onishi[4], M. Takeuchi[4], H. Yatani[1]; [1]Osaka University, Japan, [2]Osaka Dental Univesity, Japan, [3]Tohoku University, Japan, [4]NIKKATO Corporation, Japan

S5-P041 **Hybrid Functional Ru-TiN Heating Resistor Films for High-efficiency Inkjet Printhead**
S.-H. Kwon, W.-S. Kwack, Y.-R. Shin, K.-H. Kim; Pusan National University, Korea

S5-P042 **Simultaneous Amination of TiO_2 Nanoparticles in the Gas Phase Synthesis for Bio-medical Applications**
K.-N. Lee[1], Y.-E. Kim[2], C.-W. Lee[2], J.-S. Lee[1]; [1]Hanyang University-ERICA, Korea, [2]Korea University, Korea

S5-P043 **Design and Trial Fabrication of the Organic Substances Sensor in the Blood with the Micro-needle Using the Polylactic Acid**
A. Konno[1], T. Nakayama[1], M. Fukuda[2], J. Shirahata[1], T. Suzuki[1], H. Suematsu[1], Z. Fu[3], S. W. Lee[4], K. Niihara[1]; [1]Nagaoka University of Technology, Japan, [2]Lightnix, Co., Ltd., Japan, [3]Wuhan University of Technology, China, [4]Sun Moon University, Korea

S5-P044 **Making $CaTiO_3$ Nano-Tubes Inducing Osteoblast Activation by Hydrothermal Synthesis**
H. Nishida[1], T. Sekino[2], D. J. Park[2], T. Matumoto[3], T. Nakamura[3], H. Usami[3], K. Yamamoto[1]; [1]Osaka Dental University, Japan, [2]Tohoku University, Japan, [3]Osaka University, Japan

S5-P045 **Formation and Characterization of TiO_2 Thin Films Coated on Glass Beads**
H. Ueoka, Y. Suyama; Shimane University, Japan

S5-P046 **Enhanced Photovoltaic Properties of Hybrid Structured Titania Layer for Dye-Sensitized Solar Cell**
M.-H. Kim, Y.-K. Jeong; Pusan National University, Korea

S5-P047 **Enhancement of Conversion Efficiency of Dye-Sensitized Solar Cell by Low-Temperature Chemically-Synthesized TiO_2 Nanotube Photoelectrode**
J.-Y. Kim, T. Sekino, S. Tanaka; Tohoku University, Japan

S5-P048 **Structure and Properties of $Al_4B_2O_9$**
A. Anjiki, T. Uchino; Kobe University, Japan

S5-P049 **Luminescence Properties of Ce^{3+} Doped Nanocrystalline $SrAl_{12}O_{19}$**
A. Yadav[1,2], S. Chawla[1], V. Shanker[1], Ramprakash[2]; [1]National Physical Laboratory, India, [2]Birla Institute of Technology, India

S5-P050 **Visible Emission in $MgAl_2O_4$ Spinel**
S. Sawai, T. Uchino; Kobe University, Japan

S5-P051 **Optical Properties of Color Centers in α-Al_2O_3 Prepared under Vacuum**
S. Ikeda T. Uchino; Kobe University, Japan

S5-P052 **Microstructure and Liminescemce of Rare Earth Doped Li(Nb, Ti)O_3 Solid Solitions**
H. Hayashi[1], H. Nakano[2], M. I. Jones[3]; [1]KRI, Inc. Japan, [2]Toyohashi University of Technology, Japan, [3]University of Auckland, New Zealand

S5-P053 **Visible Emission in Silica Crystal**
R. Katayama, T. Iwasaka, T. Uchino; Kobe University, Japan

S5-P054 **Preparation of Composite PMMA Microbeads Hybridized with Fluorescent $YVO_4:Bi^{3+},Eu^{3+}$ Nanoparticles**
K. Akisada, Y. Noguchi, T. Isobe; Keio University, Japan

S5-P055 **Photoluminescence Properties of β-$FeSi_2$ Grains on Si Substrate with Au Coat Layer**
K. Akiyama[1], K. Yokomizo[2], S. Kaneko[1], Y. Hirabayashi[1], M. Itakura[2]; [1]Kanagawa Industrial Technology Center, Japan, [2]Kyusyu University, Japan

S5-P056 **ZnO Thin Films Prepared by a Coplanar Surface Discharge Technique**
K. Nabeta, M. Shikatani, M. Okuya; Shizuoka University, Japan

S5-P057 **Magnetic Property Change of $NiFe_2O_4$ by the Grain Growth**
R. Kurosawa, T. Suzuki, T. Nakayama, H. Suematsu, K. Niihara; Nagaoka University of Technology, Japan

Symposium 5

S5-P058 **Relating Composition, Electronic Structure, and Physical Properties in the $AlMgB_{14}$ Orthorhomic Boride Crystal Family**
L. F. Wan[1], P. J. Huffman[1], S. P. Beckman[1,2]; [1]Iowa State University, USA, [2]Ames Laboratory, USA

S5-P059 **Fabrication of the Nanosized Patterned Thin Film by Sputtering and Nanoimprint Process**
M. Takeda, T. Fujihara, H. D. Kim, T. Nakayama, T. Suzuki, H. Suematu, K. Niihara; Nagaoka University of Technology, Japan

S5-P060 **The Verification of Anisotropioc Ceramics Particle Combination Theory by a Molten Salt Method**
J. Yoshimura, T. Nakayama, T. Suzuki, H. Suematsu, K. Niihara; Nagaoka University of Technology, Japan

S5-P061 **Anisotropic Control and Characterization of the Hexagonal Boron Nitride Nanosheets Fabricated by Microscopic Mold**
T. Fujihara, C. H. Baek, M. Takeda, T. Nakayama, T. Suzuki, H. Suematu, K. Niihara; Nagaoka University of Technology, Japan

S5-P062 **Thermal Modification of Photocatalytic Activity in Ag/TiO_2 Nanotube Composites**
M. Terauchi[1], M. Ishii[2], T. Sekino[3], L. Jiwon[1], T. Nakayama[1], T. Suzuki[1], H. Suematsu[1], K. Niihara[1]; [1]Nagaoka University of Technology, Japan, [2]Osaka Prefecture University, Japan, [3]Tohoku University, Japan

S5-P063 **Use of a Natural-dye of TiO_2Nanotube for Dye-Sensitized Solar Cells**
J. W. Lee[1], M. Terauchi[1], K. Minato[2], T. Nakayama[1], T. Suzuki[1], H. Suematu[1], K. Niihara[1]; [1]Nagaoka University of Technology, Japan, [2]Hakodate National College of Technology, Japan

Symposium 6: Advances in Electro Ceramics

Main Organizers
- Satoshi Wada, University of Yamanashi, Japan
- Clive A. Randall, The Pennsylvania State University, USA

Co-Organizers
- Takashi Iijima, AIST, Japan
- Yoshihiko Imanaka, Fujitsu, Japan
- Naoki Ohashi, NIMS, Japan
- Toshio Kamiya, Tokyo Institute of Tech., Japan
- Toshimasa Suzuki, Taiyo-yuden, Japan
- Wataru Sakamoto, Nagoya Univ., Japan
- Hajime Nagata, Tokyo University of Science
- Rintaro Aoyagi, Nagoya Institute of Technology, Japan
- Susan Trolier-McKinstry, The Pennsylvania State University, USA
- Ian Reaney, University of Sheffield, England
- Dragan Damjanovic, EPFL, Switzerland
- Long-Qing Chen, The Pennsylvania State University, USA
- Guorong Li, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China
- Derek Sinclair, University of Sheffield, UK
- Suk-Joong L. Kang, KAIST, Korea
- Shashank Priya, Virginia Tech., USA

Oral Session

Monday, November 15

Room: 1004

14:15 - 16:00: High Frequency Application and New Dielectric Materials I

Chair: Ian M Reaney (University of Sheffield, UK)

14:15-14:45
S6-001 **Ceramic-based Dielectric Film on Polymer Film for Embedded Passive and Stretchable Electronics (Invited)**
Y. Imanaka, F. Kumasaka, H. Amada; Fujitsu Laboratories Ltd., Japan

14:45-15:15
S6-002 **Low Temperature Sintering Dielectric Ceramics for Passive Integration in RF to Microwave Range (Invited)**
H. Wang; Xi'an Jiaotong University, China

15:15-15:45
S6-003 **Intrinsic Dielectric Properties of Al_2O_3 Single Crystal at Millimeter Wave Frequency (Invited)**
I. Ueda[1], T. Shimada[1], J. Krupka[2]; [1]Hitachi Metals LTD., Japan, [2]Warsaw University of Technology, Poland

15:45-16:00
S6-004 **Development of LTCC Materials with High Mechanichal Strength**
S. Kawai, S. Nishiura, Y. Terashi, T. Furuse; Kyocera corporation, Japan

16:00 - 16:15 **Break**

Symposium 6

16:15 - 17:45: High Frequency Application and New Dielectric Materials II

Chair: Wataru Sakamoto (Nagoya University, Japan)

16:15-16:45

S6-005 **Circularly Polarized Dielectrically-Loaded Antennas: Current Technology and Future Challenges (Invited)**

I. M. Reaney[1], B. Zalinska[1], M. Mirsaneh[2], O. Leisten[3]; [1]University of Sheffield, UK, [2]University of Southampton, UK, [3]Sarantel Ltd, UK

16:45-17:15

S6-006 **Experimental Characterization and Theoretical Analysis of Highly Tunable Paraelectric Perovskite Thin Films (Invited)**

I. P. Koutsaroff, S. Higai, A. Ando, H. Takagi, H. Ieki; Murata Manufacturing Co., Ltd., Japan

17:15-17:30

S6-007 **Z-, Y- and M-Type Hexagonal Ferrites for High-Frequency Multilayer Inductors**

J. Töpfer[1], S. Kracunovska[1], S. Barth[2], B. Pawlowski[2], F. Bechtold[3], J. Müller[4]; [1]Univ. Appl. Sciences Jena, Germany, [2]Fraunhofer IKTS Hersdorf ,Germany, [3]Via Electronic GmbH Hermsdorf ,Germany, [4]Tech. Univ. Ilmenau, Germany

17:30-17:45

S6-008 **The Ultra-Low Temperature Firing Microwave Dielectric Ceramics with Low-k, Medium-k and High-k for Multilayer Co-Firing Applications**

D. Zhou[1], H. Wang[1], C. Randall[2], X. Yao[1]; [1]Key Laboratory of the Ministry of Education, Xi'an Jiaotong University, China, [2]The Pennsylvania State University, USA

Tuesday, November 16

Room: 1004

9:00 - 10:30: High Frequency Application and New Dielectric Materials III

Chair: Takaaki Tsurumi (Tokyo Institute of Technology, Japan)

9:00-9:45

S6-009 **Progress in Flexure Mode Designed Flexoelectric Piezoelectric Composites (Invited)**

B. Chu, W. Zhu, N. Li, L. E. Cross; Pennsylvania State University, USA

9:45-10:15

S6-010 **AlN Thin Films: New Developments in Growth, Property Modification, and Applications (Invited)**

A. Artieda, R. Matloub, E. Milyutin, P. Muralt; EPFL, Switzerland

10:15-10:30

S6-011 **Microwave Dielectric Properties and Crystal Structures on Ni-doped Cordierite and Indialite System**

H. Ohsato[1,2], A.-Y. Kim[1], C.-I. Cheon[1], K.-W. Chae[1], J.-S. Kim[1], I. Kagomiya[3]; [1]Hoseo University, Korea, [2]Nagoya Industrial Science Research Institute, Japan., [3]Nagoya Institute of Technology, Japan

10:30 - 10:45 **Break**

10:45 - 11:45: High Frequency Application and New Dielectric Materials IV

Chair: L.Eric Cross (Penn State University, USA)

10:45-11:00

S6-012 **Effect of Particle Shape on Absorption Characteristics of Composite Electromagnetic Wave Absorber Made of Sendust Particles Dispersed in Polystyren Resin**

K. Sakai[1,2], Y. Guan[1], Y. Sato[1], S. Yoshikado[1]; [1]Doshisha University, Japan, [2]Japan Society for the Promotion of Science, Japan

11:00-11:15
S6-013 **Colossal Dielectric Constants in Transition-Metal Oxides**
S. Krohns, P. Lunkenheimer, A. Loidl; University of Augsburg, Germany

11:15-11:45
S6-014 **High-*k* Dielectrics Assembled from Oxide Nanosheets (Invited)**
M. Osada[1,2], T. Sasaki[1,2]; [1]National Institute for Materials Science, Japan, [2]Japan Science and Technology Agency, Japan

14:15 - 16:00: Capacitor and Local Structure Characterization I

Chair: Clive Alan Randall (The Pennsylvania State University, USA)

14:15-15:00
S6-015 **Evolution of Multi-layer Ceramic Capacitor Technology and Challenge to the Margin (Invited)**
H. Chazono; Taiyo Yuden Co., Ltd., Japan

15:00-15:30
S6-016 **Effect of Variable-Valence Acceptors on the Resistance Degradation Behavior of $BaTiO_3$ Ceramics and MLCC (Invited)**
S.-H. Yoon[1], S.-H. Kang[1], J.-Y. Park[1], S.-H. Kwon[1], K.-H. Hur[1], C. A. Randall[2]; [1]Samsung Electro-Mechanics Co. Ltd., Korea, [2]The Pennsylvania State University, USA

15:30-16:00
S6-017 **For Understanding Reliability Issue of MLCC (Invited)**
T. Tsurumi, T. Hoshina, H. Takeda; Tokyo Institute of Technology, Japan

16:00 - 16:15 **Break**

16:15 - 18:00: Capacitor and Local Structure Characterization II

Chair: Satoshi Wada (University of Yamanashi, Japan)

16:15-16:45
S6-018 **Improvement of Reliability of Dielectrics for MLCC (Invited)**
N. Kubodera, T. Yao, T. Nakamura, N. Wada, H. Takagi; Murata Manufacturing Co., Ltd., Japan

16:45-17:00
S6-019 **Unravelling the Electrical Properties of $ACu_3Ti_4O_{12}$ Perovskites**
D. C. Sinclair; University of Sheffield, UK

17:00-17:15
S6-020 **Ca Substitution Effect in $BaTi_2O_5$ Glass-Ceramics**
A. Masuno[1], C. Moriyoshi[2], T. Mizoguchi[1], H. Inoue[1], F. Yoshida[2], Y. Kuroiwa[2], Y. Arai[3], J. Yu[3]; [1]the University of Tokyo, Japan, [2]Hiroshima University, Japan, [3]Japan Aerospace Exploration Agency, Japan

17:15-17:30
S6-021 **Phase-Field Model of Resistance Degradation of Dielectric Capacitors**
Y. Cao, S. Bhattacharya, C. A. Randall, L. Q. Chen; Penn State University, USA

17:30-18:00
S6-022 **Direct Analysis of Atomic Site Occupancy in Rare-earth Doped $BaTiO_3$ Ceramics by Cs-corrected STEM-EDX (Invited)**
S. Ueda, Y. Fujikawa; TDK Corporation, Japan

Symposium 6

Wednesday, November 17

Room: 1004

9:00 - 10:15: Capacitor and Local Structure Characterization III

Chair: Derek Sinclair (University of Sheffield, UK)

9:00-9:30
S6-023 **Defects in Perovskite-based Materials (President - Designated)**
C. A. Randall[1], R. Maier[1], S. I. Lee[1], R. Levi[2], S. H. Yoon[3]; [1]The Pennsyllvania State University, USA, [2]Intel, USA, [3]Samsung Electro-Mechanics, Korea

9:30-10:00
S6-024 **Grain Growth in Perovskites with Respect to Interface Structure and Defects (Invited)**
S.-J. L. Kang; Korea Advanced Institute of Science and Technology, Korea

10:00-10:15
S6-025 **Anneal Effect for Dielectric Properties of Barium Titanate Films Deposited by Aerosol Deposition Method**
M. Suzuki, J. Akedo; National Institute of Advanced Industrial Science and Technology, Japan

10:15 - 10:45 **Break**

10:45 - 12:00: Modeling of Functional Electroceramics and Local Structure Characterization I

Chair: Suk-Joong L. Kang (KAIST, Korea)

10:45-11:15
S6-026 **Numerical Simulations of Ferroelectric Ceramic Materials with Defects (Invited)**
A. K. Soh; The University of Hong Kong, China

11:15-11:30
S6-027 **The Defect Chemistry of Rare Earth-doped Barium Titanate**
D. C. Sinclair, L. Ben, J. Dawson, C. L. Freeman, J. Harding; University of Sheffield, UK

11:30-12:00
S6-028 ***Ab-initio* Point Defect Energetics in Rutile Titanium Dioxide (Invited)**
E. C. Dickey, X. Li, J. Britson; Pennsylvania State University, USA

13:15 - 15:00: Modeling of Functional Electroceramics and Local Structure Characterization II

Chair: Long-Qing Chen (Penn State University, USA)

13:15-14:00
S6-029 **New Directions in Modeling Electroceramics (Invited)**
A. M. Rappe; University of Pennsylvania, USA

14:00-14:30
S6-030 **Ferroelectric Nanopowders and Nanostructures by Solid-state Reaction. Microstructure Control through Nanoscale Engineering (Invited)**
V. Buscaglia[1], M. T. Buscaglia[1], A. Bassano[1], V. Kalyani[2], P. Nanni[1,2]; [1]IENI-CNR, Italy, [2]University of Genoa, Italy

14:30-14:45
S6-031 **Ferroelectric Domain Structures in Multiferroic $BiFeO_3$ Thin Films**
P. P. Wu[1], B. Winchester[1], D. G. Schlom[2], Y. H. Chu[3], R. Ramesh[4], S. V. Kalinin[5], X. Q. Pan[6], C. B. Eom[7], L. Q. Chen[1]; [1]Pennsylvania State University, USA, [2]Cornell University, USA, [3]National Chiao Tung University, Taiwan, [4]University of California, Berkeley, USA, [5]Oak Ridge National Laboratory, USA, [6]University of Michigan, USA, [7]University of Wisconsin, USA

14:45-15:00
S6-032 **Cation Off-stoichiometry at/near Surfaces in $SrTiO_3$**
T. Yamamoto[1], N. Shibata[1], T. Mizoguchi[1], Y. Ikuhara[1,2]; [1]The University of Tokyo, Japan, [2]Tohoku University, Japan

15:00 - 15:15 **Break**

15:15 - 17:15: Modeling of Functional Electroceramics and Local Structure Characterization III

Chair: Vincenzo Buscaglia (National Research Council - CNR, Italy)

15:15-15:45
S6-033 **Measurements of Local Structure in Electroceramics (Invited)**
I. Levin; National Institute of Standards and Technology, USA

15:45-16:00
S6-034 **Domain Structures with Multiple Inhomogeneities in the Monoclinic Phase of $0.68Pb(Mg_{1/3}Nb_{2/3})O_3$-$0.32PbTiO_3$**
S. Mori[1], K. Kurushima[2]; [1]Osaka Prefecture University, Japan, [2]Toray Research Center, Japan

16:00-16:15
S6-035 **Rapid and High Sensitive Structure Evaluation of Ferroelectric Films Using Micro-Raman Spectroscopy**
M. Nishide[1], T. Tai[2], T. Katoda[2], S. Yokoyama[3], H. Funakubo[3], K. Nishida[1], T. Yamamoto[1]; [1]National Defense Academy, Japan, [2]Kochi University of Technology , Japan, [3]Tokyo Institute of Technology, Japan

16:15-16:45
S6-036 ***In Situ* Crystal Structure Investigation of $BaTiO_3$-Based Ceramics under Electric Fields by High Energy Synchrotron Radiation Diffraction (Invited)**
Y. Kuroiwa; Hiroshima University, Japan

16:45-17:15
S6-037 **Contributions to the Converse Piezoelectric Coefficients in Ferroelectric Ceramics Revealed Using in Situ X-ray Diffraction (Invited)**
J. L. Jones[1], A. Pramanick[1,2], J. C. Nino[1], J. E. Daniels[3,4], D. Damjanovic[5]; [1]University of Florida, FL, USA, [2]Oak Ridge National Laboratory, USA, [3]European Synchrotron Radiation Facility, France, [4]University of New South Wales, Australia, [5]Swiss Federal Institute of Technology in Lausanne - EPFL, Switzerland

Thursday, November 18

Room: 1004

9:00 - 10:30: Low Temperature Processing I

Chair: Guorong Li (Shanghai Institute of Ceramics, Chinese Academy of Sciences, China)

9:00-9:45
S6-038 **Soft Processing of Electro-Ceramics: Feature and Future (Invited)**
M. Yoshimurra[1,2]; [1]Tokyo Institute of Technology, Japan, [2]National Cheng Kung University, Taiwan

9:45-10:15
S6-039 **Direct-Write, Chemically-Prepared Temperature Insensitive Dielectrics (Invited)**
J. F. Carroll III, B. A. Tuttle, B. A. Hernandez-Sanchez, P. Mahoney, D. L. Moore, P. Lu; Sandia National Laboratories, USA

10:15-10:30
S6-040 **Preparation and Charaterization of $LiNbO_3$ Nanocrystals and Nanocomposite Thin Films (Invited)**
A. M. Harun, F. Bygrave, T. P. Comyn, A. J. Bell; University of Leeds, UK

Symposium 6

10:45 - 12:00: Low Temperature Processing II

Chair: Masahiro Yoshimura (Tokyo Institute of Technology, Japan and National Cheng Kung University, Taiwan)

10:45-11:15

S6-041 **Optical and Electric Properties of PMN-PT Transparent Ceramics (Invited)**
G. Li[1], W. Ruan[1], J. Zeng[1], L. Zheng[1], H. Zeng[1], A. Ding[1], L. S. Kamzina[2]; [1]Chinese Academy of Sciences, China, [2]Russian Academy of Science, Russia

11:15-11:30

S6-042 **Textured Microstructure and A-site Occupancy in Niobate Ceramics with Tungsten Bronze Structure: an Analytical TEM Study**
H. Gu, X. Wang; Chinese Academy of Sciences, China

11:30-12:00

S6-043 **Microscopic Properties and Electronic Structure of the O-deficient Amorphous Semiconducting Oxides (Invited)**
I.-J. Kang, C. H. Park; Pusan National University, Korea

13:15 - 15:00: Low Temperature Processing III

Chair: Andrew J. Bell (University of Leeds, UK)

13:15-13:45

S6-044 **Room Temperature Impact Consolidation (RTIC) of Fine Ceramic Powder by Aerosol Deposition Method and Its Mechanism (Invited)**
J. Akedo; National Institute of Advanced Industrial Science and Technology, Japan

13:45-14:15

S6-045 **Low Temperature Synthesis of Epitaxaial $KNbO_3$ Thick Films Grown by Hydrothermal Method (Invited)**
M. Ishikawa[1], H. Einishi[1], T. Hasegawa[1], T. Morita[2], M. Kurosawa[1], H. Funakubo[1]; [1]Tokyo Institute of Technology, Japan, [2]The University of Tokyo, Japan

14:15-14:30

S6-046 **New Ferroelectric Aurivillius Oxides: Incorporation of Sc^{3+} in Stoichiometric Compositions**
T. Sivakumar, M. Itoh; Tokyo Institute of Technology, Japan

14:30-14:45

S6-047 **Doped and Non-doped Barium Titanate Prepared from a New Water-based Precursor-solution**
Y. Matsushima, K. Iwase, S. Kasuga, T. Kawai; Yamagata University, Japan

14:45-15:00

S6-048 **Direct Synthesis of Platelet $KNbO_3$ Particles from KNb_3O_8 Precursor Using New Topochemical Conversion Method**
K. Kakimoto, K. Sugiyama, I. Kagomiya; Nagoya Institute of Technology, Japan

15:00 - 15:15 **Break**

15:15 - 16:30: Low Temperature Processing IV

Chair: Satoshi Wada (University of Yamanashi, Japan)

15:15-15:45

S6-049 **Microwave Processing for Sintering at Low Temperature (Invited)**
T. S. Suzuki[1], M. Sekimoto[2,1], H. Tanaka[1], T. Nishimura[1], Y. Sakka[1,2]; [1]National Institute for Materials Science, Japan, [2]University of Tsukuba, Japan

15:45-16:00

S6-050 **T-x-y Diagrams Computer Models for Lead-Free Soldering Systems**
V. Lutsyk, V. Vorobjeva; RAS, Russia

16:00-16:30
S6-051 **Fractal Geometry and Contact Surface Area Modelling of Electroceramics (Invited)**
V. Mitic[1,2], V. B. Pavlovic[3], V. Paunovic[1], L. Kocic[1], L. Zivkovic[1]; [1]University of Nis, Serbia, [2]Serban Academy of Science and Arts Serbia, [3]University of Belgrade, Serbia

Monday, November 15

Room: 1005

14:15 - 16:00: Transparent Electrodes & Semiconductor Ceramics I

Chair: Naoki Ohashi (National Institute for Materials Science, Japan)

14:15-14:45
S6-053 **Density Functional Approach to Point Defects in Oxide Semiconductors (Invited)**
F. Oba; Kyoto University, Japan

14:45-15:15
S6-054 **Preparation of Ga-doped ZnO Tablets and Application to Thin Films Deposited by Ion-plating Method (Invited)**
A. Senjuh[1], N. Kuroiwa[1], T. Yamamoto[1], Y. Sato[2], H. Makino[2], N. Yamamoto[2], T. Yamamoto[2]; [1]Hakusui Tech Co., Ltd., Japan, [2]Kochi University of Technology, Japan

15:15-15:30
S6-055 **Properties of Al Doped Zinc Oxide Films Prepared by Electron Beam-PVD**
N. Yamaguchi, T. Kuroyama, Y. Okuhara, H. Matsubara; Japan Fine Ceramics Center, Japan

15:30-15:45
S6-056 **First Attempt to Evaluate Nitrogen Diffusivity in AlN**
T. Ohgaki[1], H. Haneda[1,2], I. Sakaguchi[1], K. Watanabe[1], S. Hishita[1], Y. Adachi[1], N. Ohashi[1,2]; [1]National Institute for Materials Science, Japan, [2]Kyushu University, Japan

15:45-16:00
S6-057 **ZnO Thin Films Grown by Electrochemical Deposition Method with Pulsed Electrolytic Current and Its Electrical Conductivity**
A. Ashida, T. Okuma, T. Nagata, N. Fujimura; Osaka Prefecture University, Japan

16:00 - 16:15 **Break**

16:15 - 18:00: Transparent Electrodes & Semiconductor Ceramics II

Chair: Fumiyasu Oba (Kyoto University, Japan)

16:15-16:45
S6-058 **Structural Variation in ZnO-$LiGaO_2$ Pseudo-Binary System and Appearance of Novel Compound Semiconductor; Zn_2LiGaO_4 (Invited)**
T. Omata[1], M. Kita[2], K. Tachibana[1], S. Otsuka-Yao-Matsuo[1]; [1]Osaka University, Japan, [2]Toyama National College of Technology, Japan

16:45-17:15
S6-059 **Fabrication of MgO(111) Polar Films by Pulsed Laser Deposition (Invited)**
T. Susaki[1,2], S. Kumada[1], H. Ishida[1], K. Matsuzaki[1], H. Hosono[1,2]; [1]Tokyo Institute of Technology, Japan, [2]Japan Science and Technology Agency, Japan

17:15-17:30
S6-060 **Tailoring the Microstructure and Current-Voltage Characteristics of ZnO-Based Varistor Ceramics Using an IBs-Induced Grain-Growth Mechanism**
S. Bernik[1,2], M. Podlogar[1], N. Daneu[1,2], A. Rečnik[1,2]; [1]Jozef Stefan Institute, Slovenia, [2]Center of Excellence NAMASTE, Slovenia

Symposium 6

17:30-17:45
S6-061 **Near-Infrared Reflection from Al-doped ZnO films Prepared by Multi-Target Reactive Sputtering**
Y. Okuhara[1], H. Matsubara[1], M. Takata[2]; [1]Japan Fine Ceramics Center, Japan, [2]Nagaoka University of Technology, Japan

17:45-18:00
S6-062 **Observation of Potential Distribution at Interface by Hard-x-ray Photoelectron Spectroscopy**
N. Ohashi, J. Li, S. Ueda, Y. Yamashita, H. Yoshikawa, K. Kobayashi, I. Sakaguchi, Y. Adachi, H. Okushi, H. Haneda; National Institute for Materials Science, Japan

Tuesday, November 16

Room: 1005

9:00 - 10:30: Multiferroelectrics I

Chair: Shuxiang Dong (Peking University, China)

9:00-9:45
S6-063 **Domain Wall Nanoelectronics (Invited)**
R. Ramesh; University of California, Berkeley, USA

9:45-10:15
S6-064 **Structural Studies of $BiMO_3$ Perovskites: $Bi_2Mn_{2/3}M_{2/3}Ni_{2/3}O_6$, $Bi_2Ti_{3/4}Fe_{1/2}M_{3/4}O_6$ and $Bi_2M'M''O_6$ (Invited)**
J. B. Claridge; University of Liverpool, UK

10:15-10:30
S6-065 **Influence of Magneto-electric Coefficient for Magnetic and Electric Charge Injection Properties on Magneto-electirc MIS Capacitor**
T. Yokota, Y. Tsuboi, R. Imura, S. Kito, M. Gomi; Nagoya Institute of Technology, Japan

10:30 - 10:45 **Break**

10:45 - 11:45: Multiferroelectrics II

Chair: Toshio Kamiya (Tokyo Institute of Technology, Japan)

10:45-11:00
S6-066 **YSZ Thin Films by Ultrasonic Aerosol Assisted Chemical Vapor Deposition (UAA-CVD)**
M. V. F. Schlupp, J. L. M. Rupp, A. Bieberle-Hütter, L. J. Gauckler; ETH Zürich, Switzerland

11:00-11:15
S6-067 **Densification Behavior of Gadolinium-doped Ceria upon Sintering on an Atomic Scale**
T. Kosaka, K. Sato; Tokyo Gakugei University, Japan

11:15-11:30
S6-068 **Effect of Distance between Wire and Glass Substrate on Particle Size of Tungsten Oxide Prepared by Electric Current Heating Method Using Tungsten Wire**
T. Hagizawa, T. Honma, Y. Kuroki, T. Okamoto, M. Takata; Nagaoka University of Technology, Japan

11:30-11:45
S6-069 **PTCR Properties of (Gd,Yb)-Mn Co-doped $(Ba,Sr)TiO_3$ Fired in Ar**
N. Takeuchi, E. Nakamura, H. Kobayashi; Kyoto Institute of Technology, Japan

14:15 - 16:00: Multiferroelectrics III

Chair: Muralt Paul (EPFL, Switzerland)

14:15-14:45
S6-070 **A Resonance Bending Bode Magnetoelectric Coupling Equivalent Circuit (Invited)**
M. Guo, S. Dong; Peking University, China

14:45-15:15
S6-071 **Magnetoelectric Composites Thick Films by Aerosol-Deposition (Invited)**
J. Ryu[1], G. Han[1], N.-K. Oh[1], C.-W. Baek[2], D.-Y. Jeong[2], J.-W. Kim[1], W.-H. Yoon[1], D.-S. Park[1], C.-S. Park[3], S. Priya[3]; [1]Korea Institute of Materials Science, Korea, [2]Myong-Ji University, Korea, [3]Virginia Tech, USA

15:15-15:45
S6-072 **Phenomenological Model on Electric-Field-Induced Magnetic Easy Axis Reorientation in Multiferroic Layered Heterostructures (Invited)**
J. M. Hu, C. W. Nan; Tsinghua University, China

15:45-16:00
S6-073 **Cofiring of Integrated Ferrite+Dielectric Laminates**
Y.-L. Tung[1], R.-T. Hsu[1], J.-H. Jean[1], S.-C. Lin[2]; [1]National Tsing Hua University, Taiwan, [2]ACX Corp., Taiwan

16:00 - 16:15 **Break**

16:15 - 18:00: Energy Ferroelectrics I

Chair: Susan Trolier-McKinstry (Penn State University, USA)

16:15-17:00
S6-074 **Energy Harvesting with Piezoelectric Thin Film Micro Structures: Status and Promises (Invited)**
P. Muralt; EPFL, Switzerland

17:00-17:30
S6-075 **Potential Thermoelectric Materials: Ferroelectric Oxides (Invited)**
S. Lee, C. A. Randall; The Pennsylvania State University, USA

17:30-18:00
S6-076 **Bismuth-based Compounds for Lead-free Piezoelectric Materials (Invited)**
K. Datta, S. Gorfman, P. Thomas; University of Warwick, South Africa

Wednesday, November 17

Room: 1005

9:00 - 10:30: Energy Ferroelectrics II

Chair: Kenji Uchino (The Penn State University, USA)

9:00-9:30
S6-077 **Processing of Piezoelectric Films for MEMS Applications (Invited)**
S. Trolier-McKinstry; Penn State University,

9:30-10:00
S6-078 **Nonlinear Energy Harvesting (Invited)**
M. Lallart, D. Guyomar; Université de Lyon, France

10:00-10:15
S6-079 **PLZT-Based Photovoltaic Piezoelectric Transformer with Light Feedback**
L. Kozielski[1], M. Adamczyk[1], J. Erhart[2]; [1]University of Silesia, Poland, [2]International Center for Piezoelectric Research, Czech Republik

10:15-10:30
S6-080 **Charactrization of Direct Piezoelectric Effect for Vibration Energy Harvesting**
T. Toshimura[1], H. Miyabuchi[1], S. Murakami[2], A. Ashida[1], N. Fujimura[1]; [1]Osaka Prefecture University, Japan, [2]Technology Research Institute of Osaka Prefecture, Japan

Symposium 6

10:45 - 11:45: Energy Ferroelectrics III

Chair: Hajime Nagata (Tokyo University of Science, Japan)

10:45-11:15

S6-081 **Preparation and Charateristics of Piezoelectric Thick Films (Invited)**
D.-S. Parik, J. Ryu, J.-J. Choi, B.-D. Hahn, W.-H. Yoon, J.-W. Kim; Korea Institute of Materials Science, Korea

11:15-11:30

S6-082 **Universal Loss Characterization Methodology in Smart Materials**
K. Uchino; The Penn State University, USA

11:30-11:45

S6-083 **Porosity Dependence of Piezoelectric Properties for Porous Potassium Niobate System Ceramics**
S. Wada, K. Maeda, Y. Mase, S. Shimizu, I. Fujii, K. Nakashima, N. Miyajima; University of Yamanashi, Japan

13:15 - 15:00: Piezoelectric Materials I

Chair: Takashi Iijima (National Institute of Advanced Industrial Science and Technology, Japan)

13:15-14:00

S6-084 **Current Developments and Future Prospective of Perovskite-type Lead-free Piezoelectric Ceramics (Invited)**
T. Takenaka, Y. Hiruma, H. Nagata; Tokyo University of Science, Japan

14:00-14:30

S6-085 **Electric-Field Effects in Bi-based Perovskites (Invited)**
J. Rödel, W. Jo; TU Darmstadt, Germany

14:30-14:45

S6-086 **Abnormally Enhanced Electric-Field-Induced Strain of $Bi_{0.5}(Na_{0.82}K_{0.18})_{0.5}TiO_3$ Lead-Free Piezoelectric Ceramics by Sn Doping**
K.-N. Pham[1], H.-S. Han[1], V. D. N. Tran[1], I. W. Kim[1], S.-J. Jeong[2], J.-S. Lee[1]; [1]Univeristy of Ulsan, Korea, [2]Korea Electrotechnology Research Institute, Korea

14:45-15:00

S6-087 **Piezoelectric Properties and Field-induced Strain of Textured $(Bi_{1/2}K_{1/2})TiO_3$–Based Ceramics**
H. Nagata, M. Saitoh, F. Kawata, Y. Hiruma, T. Takenaka; Tokyo University of Science, Japan

15:15 - 17:15: Piezoelectric Materials II

Chair: Tadashi Takenaka (Tokyo University of Science, Japan)

15:15-15:45

S6-088 **Bi-Based Ferroelectric Single Crystals Grown by High-Oxygen-Pressure Top-Seeded Solution Growth Method (Invited)**
Y. Noguchi, Y. Kitanaka, H. Onozuka, A. Morishita, M. Miyayama; The University of Tokyo, Japan

15:45-16:00

S6-089 **Electric Field-Induced Strain in (Na KLi)$(NbTa)O_3$ Ceramics**
S.-J. Jeong[1], D.-S. Lee[1], M.-S. Kim[1], J.-S. Lee[2]; [1]Korea Electrotechnology Research Institute, Korea, [2]Ulsan University, Korea

16:00-16:15

S6-090 **Polarization Behavior in the $Na_{0.5}Bi_{0.5}TiO_3$–$Li_{3x}La_{(2/3)-x}‡_{(1/3)-2x}TiO_3$ System**
D. Suvorov, M. Spreitzer; Jozef Stefan Institute, Slovenia

16:15-16:30

S6-091 **Growth Control of $BiFeO_3$ Thin Films by Oxide Buffer Layers and Heterolayered Muliferroic Structures**
J. Wang, J. Wu, H. J. Liu; National University of Singapore, Singapore

16:30-16:45
S6-092 **A New Approach to Enhance Piezoelectric Response of Li-modified (K, Na)NbO_3 Lead-free Piezoelectric Ceramics**
J.-F. Li, K. Wang; Tsinghua University, China

16:45-17:15
S6-093 **Domain-wall Contribution to Dielectric and Piezoelectric Properties of Fine-grained $BaTiO_3$ Ceramics (Invited)**
T. Hoshina, Y. Kigoshi, T. Yamazaki, S. Hatta, T. Teranishi, H. Takeda, T. Tsurumi; Tokyo Institute of Technology, Japan

Thursday, November 18

Room: 1005

9:00 - 10:30: Piezoelectric Materials III

Chair: Rintaro Aoyagi (Nagoya Institute of Technology, Japan)

9:00-9:30
S6-094 **High Temperature ReCOB Piezocrystals: Recent Developments (Invited)**
S. Zhang[1], F. Yu[1,2], Y. Fei[3], E. Frantz[1], X. Zhao[2], D. Yuan[2], B. H. T. Chai[3], D. Snyder[1], T. R. Shrout[1]; [1]Pennsylvania State University, USA, [2]Shandong University, China, [3]Crystal Photonics Inc., USA,

9:30-9:45
S6-095 **Growth, Structure and Electrical Properties of Aluminum Substituted Langasite Family Crystals**
H. Takeda[1], J. Yamaura[2], T. Hoshina[1], T. Tsurumi[1]; [1]Tokyo Institute of Technology, Japan, [2]The University of Tokyo, Japan

9:45-10:00
S6-096 **Microstructue and Textue Development in Lead-Free Piezoelectric Ceramics Made by a Templated Grain Growth Process**
T. Kimura; Keio University, Japan

10:00-10:15
S6-097 **Tetragonal-Rhombohedral Morphotropic Phase Boundary In Perovskite Niobate-Based Solid Solutions**
R. Wang[1], H. Bando[1], M. Itoh[2]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Tokyo Institute of Technology, Japan

10:15-10:30
S6-098 **Anomalous Discharge Characteristics and Piezoelectric Property of Alkali Niobate Pezoceramics**
H. Matsudo, K. Kakimoto, I. Kagomiya; Nagoya Institute of Technology, Japan

10:30 - 10:45 **Break**

10:45 - 12:00: Piezoelectric Materials IV

Chair: Shujun Zhang (Pennsylvania State University, USA)

10:45-11:15
S6-099 **Enhanced Properties of Electro-Ceramics by Low Temperature Microwave Sintering (Invited)**
J. Kim[1], S.-H. Choi[1], H.-W. Lee[1], J. Moon[2]; [1]Korea Institue of Sci & Tech., Korea, [2]Yonsei University, Korea

11:15-11:30
S6-100 **Rhombohedral-Tetragonal Transition and Enhanced Piezoelectric Property of (1-x)$BiFeO_3$-x$BiCoO_3$ Solid Solution Thin Films**
Y. Nakamura, M. Kawai, M. Azuma, Y. Shimakawa; Kyoto University, Japan

Symposium 6

11:30-11:45

S6-101 **Synthesis and Characterization of Lead-Free Piezoelectric $NaNbO_3$-$BaTiO_3$ Thin Films by Chemical Solution Deposition**

W. Sakamoto[1], Y. Hamazaki[1], H. Maiwa[2], B.-Y. Lee[3], T. Iijima[3], M. Moriya[1], T. Yogo[1]; [1]Nagoya University, Japan, [2]Shonan Institute of Technology, Japan, [3]National Institute of Advanced Industrial Science and Technology, Japan

11:45-12:00

S6-102 **Structural, Dielectric, and Piezoelectric Properties of $BaTiO_3$-$Bi(Mg_{1/2}Ti_{1/2})O_3$ Ceramics**

I. Fujii, R. Mitsui, K. Yamato, K. Nakashima, N. Kumada, S. Wada; University of Yamanashi, Japan

13:15 - 15:00: Piezoelectric Materials V

Chair: Ho-Yong Lee (Sunmoon University, Korea)

13:15-13:45

S6-103 **Stress Induced Behavior of PMN-PT and KNN Thick Films (Invited)**

M. Kosec, H. Uršič, J. Pavlič, T. Rojac, J. Holc; Jozef Stefan Institute, Slovenia

13:45-14:00

S6-104 **Influence of BZT Content on Crystallographic and Ferroelectric Properties in PZT-BZT Materials**

C. Mohamed-Tahar[1], Y. Sugiyama[2], Y. Tasaki[3], H. Ishiwara[1], H. Funakubo[1]; [1]Tokyo Institute of Technology, Japan, [2]Fujitsu Laboratories, Ltd., Japan, [3]Toshima Manufacturing Co., Ltd., Japan

14:00-14:15

S6-105 **High-Pressure Synthesis and Characterization of Novel $LiNbO_3$-type Oxides**

Y. Inaguma[1], A. Aimi[1], K. Tanaka[1], D. Mori[1], T. Tsuchiya[1], M. Yoshida[1], T. Katsumata[2], T. Ohba[3], K. Hiraki[1], T. Takahashi[1], M. Nakayama[4], J. Yeon[5], P. S. Halasyamani[5]; [1]Gakushuin Univ., Japan, [2]Tokai Univ., Japan, [3]Chiba Univ., Japan, [4]Nagoya Inst. of Tech., Japan, [5]Univ. of Houston, USA

14:15-14:30

S6-106 **Triple-point-driven Nanodomains in Lead-free BZT-BCT Ceramics—the Origin of Strong Piezoelectricity Competing with PZT**

J. Gao[1,2], D. Xue[1,2], X. Ren[1,2]; [1]Xi'an Jiaotong University, China, [2]National Institute for Materials Science, Japan

14:30-15:00

S6-107 **Phase Transitions in Relaxed Epitaxial $Pb(Zr_{1-x}Ti_x)O_3$ Films (Invited)**

D. S. Tinberg[1], R. L. Johnson-Wilke[1], D. D. Fong[2], T. T. Fister[2], S. K. Streiffer[3], Y. Han[4], I. M. Reaney[4], S. Trolier-McKinstry[1]; [1]The Pennsylvania State University, USA, [2]Argonne National Laboratory, USA, [3]Argonne National Laboratory, USA, [4]University of Sheffield, UK

15:15 - 16:15: Piezoelectric Materials VI

Chair: Wataru Sakamoto (Nagoya University, Japan)

15:15-15:45

S6-108 **High $T_C/T_{RT}/E_C$ PMN-PZT Single Crystals Fabricated by Solid-State Crystal Growth (SSCG) Technique (Invited)**

S.-M. Lee[1], D.-H. Kin[1], H.-Y. Lee[1,2]; [1]Ceracomp Co., Ltd., Korea, [2]Sunmoon University, Korea

15:45-16:15

S6-109 **Field Induced Effect Near MPB in $Pb(Zn_{1/3}Nb_{2/3})O_3$-$PbTiO_3$ (Invited)**

M. Iwata[1], S. Kato[1], R. Aoyagi[1], M. Maeda[1], Y. Ishibashi[2]; [1]Nagoya Institute of Technology, Japan, [2]Kyushu University, Japan

Poster Session

Monday, November 15

Room: Event Hall

12:00 - 14:00

S6-P001 **$Ba_4XTa_{10}O_{30}$, X = Co, Mg, Zn, and Ni: Novel Quantum Paraelectric Compounds**
L. Wang, T. Kolodiazhnyi, Y. Sakka; National Institute for Materials Science, Japan

S6-P002 **Effects of Alkaline-earth Oxide Additives to $(Ba,Sr)TiO_3$ Ceramics Fired under Reduced Atmosphere**
Y. Sakai[1], T. Futakuchi[1], M. Adachi[2]; [1]Toyama Industrial Technology Center, Japan, [2]Toyama Prefectural University, Japan

S6-P003 **Microstructure and Dielectric Properties of $BaTi_{1-x}Zr_xO_3$ Ceramics Obtained by Spark Plasma Sintering Method**
A. Ianculescu[1], D. Berger[1], L. Curecheriu[2], C. Ciomaga[2], F. Tudorache[2], L. Mitoşeriu[2], G. Bonnefont[3], G. Fantozzi[3]; [1]Polytechnics University of Bucharest, Romania, [2]Al. I.Cuza University, Romania, [3]University of Lyon, France

S6-P004 **Dielectric Properties of Dense Nanograin Barium Titanate Free-Standing Films**
H. Shimooka[1], S. Kohiki[1], M. Kuwabara[2]; [1]Kyushu Institute of Technology, Japan, [2]The University of Tokyo, Japan

S6-P005 **Charge Compensation, Electrical and Dielectric Behavior in Donor Doped $CaCu_3Ti_4O_{12}$**
A. K. Dubey[1], O. Parkash[2], D. Kumar[2], P. Singh[2], S. Singh[2]; [1]Indian Institute of Technology, India, [2]Institute of Technology, India

S6-P006 **High-pressure Synthesis, Structure and Dielectric Properties for $SrCu_3Ti_4O_{12}$**
D. Mori, M. Shimoi, Y. Kato, T. Katsumata, K. Hiraki, Y. Inaguma; Gakushuin University, Japan

S6-P007 **Preparation of Strontium Titanate Nanocubes Using Titanium Alkoxide and their Accumulations by Capillary Force**
S. Iwatsuki, M. Kera, K. Nakashima, I. Fujii, T. Takei, N. Kumada, S. Wada; University of Yamanashi, Japan

S6-P008 **Preparation of Barium Titanate / Strontium Titanate Multilayer Complex Nanoparticles Using Nanocube Substrate**
T. Goto[1], S. Iwatsuki[1], K. Nakashima[1], I. Fujii[1], Y. Kuroiwa[2], Y. Makita[3], S. Wada[1]; [1]University of Yamanashi, Japan, [2]Hiroshima University, Japan, [3]National Institute of Advanced Industrial Science and Technology, Japan

S6-P009 **Preparation and Characterization of Grain-Oriented Barium Titanate Ceramics Using Electrophoresis Deposition Method under A High Magnetic Field**
T. Kita[1], S. Kondo[1], T. Takei[1], N. Kumada[1], K. Nakashima[1], I. Fujii[1], T. S. Suzuki[2], T. Uchikoshi[2], Y. Sakka[2], Y. Miwa[3], S. Kawada[3], M. Kimura[3], S. Wada[1]; [1]University of Yamanashi, Japan, [2]National Institute for Materials Science, Japan, [3]Murata Manufacturing, Japan

S6-P010 **Control of Interfacial Structure of Potassium Niobate-Barium Titanate Ceramics and their Dielectric Properties**
K. Yamashita[1], S. Shimizu[1], I. Fujii[1], K. Nakashima[1], N. Kumada[1], T. Tsukada[2], T. S. Suzuki[3], T. Uchikoshi[3], Y. Sakka[3], S. Wada[1]; [1]University of Yamanashi, Japan, [2]TDK Corporation, Japan, [3]National Institure for Materials Science, Japan

S6-P011 **Fabrication of SnO_2 Crystal Layers by Flux Coating Method**
S. Suzuki, K. Teshima, S. H. Lee, S. Oishi; Shinshu University, Japan

S6-P012 **Sol-Gel Deposition of Transparent Conducting ZnO Films**
I. Winer, G. E. Shter, G. S. Grader; Israel Institute of Technology, Israel

Symposium 6

S6-P013 **Preparation and Characterization of Cu^{2+}-substituted Calcium Aluminate Electride**
Y. Komaya, M. Nagao, S. Watauchi, I. Tanaka; University of Yamanashi, Japan

S6-P014 **Low-Temperature Fabrication of Highly Crystalline ZnO Layers by an Atmospheric Pressure Plasma-Assisted Flux Coating (APP-FC)**
M. Oishi[1], S. Suzuki[1], K. Teshima[1], S. H. Lee[1], S. Tajima[2], S. Tsuchiya[2], T. Ichiki[2], S. Oishi[1]; [1]Shinshu University, Japan, [2]The University of Tokyo, Japan

S6-P015 **Conductive Perovskite-type Metal Oxide Thin Films Prepared by Chemical Solution Deposition Technique**
K. Sasajima, H. Uchida; Sophia University, Japan

S6-P016 **Electric Property of ZnO Based Transparent Conductor Films in GHz Range**
T. Ogino[1,2,3], S. Sato[3,4], N. Ohashi[1,3,4], S. Hishita[3], I. Sakaguchi[3], Y. Adachi[3], K. Nakajima[2], T. Takenaka[4], H. Haneda[1,3]; [1]Kyushu Univ., Japan, [2]Taiyo Yuden Co.,Ltd.,Japan, [3]National Institute for Materials Science, Japan, [4]Tokyo University of Science, Japan

S6-P017 **Coloration and Depth Distribution of Cations Electrochemically-inserted into Electrochromic WO_3 Thin Films**
M. Kawai, S. Sakida, Y. Benino, T. Nanba; Okayama University, Japan

S6-P018 **Oxygen Diffusion in Al-implanted ZnO Ceramics**
I. Sakaguchi[1], K. Watanabe[1], T. Ogino[2,3], Y. Adachi[1], T. Ohgaki[1], S. Hishita[1], N. Ohashi[1,2], H. Haneda[1,2]; [1]National Institute for Materials Science, Japan, [2]Kyushu Univ., Japan, [3]Taiyo Yuden Ltd.,Japan

S6-P019 **Characterization of Pt/$SrTiO_3$:Nb Junctions by Electron Beam Induced Current**
J. Li, J. Chen, N. Ohashi, H. Okushi, I. Sakaguchi, T. Sekiguchi, H. Haneda; National Institute for Materials Science, Japan

S6-P020 **Non-polar ZnO and (Mg,Zn)O Films Grown by Pulsed Laser Deposition**
Y. Adachi, I. Sakaguchi, N. Ohashi, H. Haneda; National Institue for Materials Science, Japan

S6-P021 **ZnO Crystal Growth on Micro Electrode by Electrochemical Deposition Method**
Y. Kondo, A. Atsushi, N. Nouzu, N. Fujimura; Osaka Prefecture University, Japan

S6-P022 **Electrical Properties of PTC Ceramics Prepared from Nd-Doped $BaTiO_3$ by Hydrothermal Synthesis**
E. Sato, S. Umeki, T. Hashishin, J. Tamaki, K. Kojima; Ritsumeikan University, Japan

S6-P023 **Degenerate *p*-type Semiconductivity in Mg-doped Silicon**
Y. Uenaka, T. Uchino; Kobe University, Japan

S6-P024 **Control of Varistor Voltage by Grain-size Control of Bi-added ZnO Varistors**
A. Fukumori, M. Takada, Y. Sato, S. Yoshikado; Doshisha University, Japan

S6-P025 **High Frequency Magnetic Properties of Bi and Si Oxides-doped NiCuZn Ferrite**
J. Kato, K. Ono, Y. Matsuo; FDK Corporation, Japan

S6-P026 **Enhanced Magnetic and Electrical Properties in Cobalt Ferrite Ceramics by Doping Trace Amount of Alumina**
R. Guo, C-A. Wang, Y. Huang; Tsinghua University, China

S6-P027 **Anomalous Electric Field-Induced Switching of Local Magnetization Vector in a Simple FeBSiC-on-Pb(Zr,Ti)O_3 Multiferroic Bilayer**
J. Ma, C. W. Nan; Tsinghua University, China

S6-P028 **Dielectric Properties and Related Microstructures in Mu-Substituted $YbFe_2O_4$**
K. Matsumoto[1], T. Hoshiyama[1], S. Mori[1], K. Yoshii[2], T. Kambe[3], N. Ikeda[3]; [1]Osaka Prefecture University, Japan, [2]Japan Atomic Energy Agency, Japan, [3]Okayama University, Japan

S6-P029 **AC Impedance Studies on Ferroelectromagnetic Ceramics**
D. Czekaj, A. Lisinska-Czekaj; University of Silesia, Poland

S6-P030 **From Fe_2O_3@$BaTiO_3$ Core-Shell Particles to Multifunctional Composites Containing Different Magnetic Phases: Synthesis and Properties**
M. T. Buscaglia[1], V. Buscaglia[1], L. Curecheriu[2], P. Postolache[2], L. Mitoseriu[2], A. C. Ianculescu[3], B. S. Vasile[3], Z. Zhao[4], P. Nanni[1,5]; [1]IENI-CNR, Italy, [2]Al. I.Cuza University, Romania, [3]Polytechnics University of Bucharest, Romania, [4]University of Stockholm, Sweden, [5]University of Genoa, Italy

S6-P031 **Magnetoelectric Properties of $0.1Bi_{0.95}Dy_{0.05}FeO_3$-$0.9Pb(Fe_{2/3}W_{1/3})O_3$ Multiferroic**
A. Stoch[1], P. Stoch[2,3], J. Kulawik[1], P. Zieliński[4], J. Maurin[2,5]; [1]Institute of Electron Technology Krakow Division, Poland, [2]Institute of Atomic Energy – POLATOM, Poland, [3]AGH-University of Science and Technology, Poland, [4]Institute of Nuclear Physics PAN, ul. Poland, [5]National Medicines Institute, Poland

S6-P032 **Structural and Mössbauer Effect Studies of $0.1Bi_{0.95}Dy_{0.05}FeO_3$-$0.9Pb(Fe_{2/3}W_{1/3})O_3$ Multiferroic**
P. Stoch[1,2], A. Stoch[3], J. Kulawik[3], J. Maurin[1,4], P. Zachariasz[1]; [1]Institute of Atomic Energy – POLATOM, Poland, [2]AGH-University of Science and Technology, Poland, [3]Institute of Electron Technology Krakow Division, Poland, [4]National Medicines Institute, Poland

S6-P033 **Low-Temperature Sintering of NiZnCu Ferrite - (Ba, Sr)TiO_3 Composites**
T. Kawasaki[1], K. Abe[1], N. Kitahara[2], J. Takahashi[1]; [1]Hokkaido University, Japan, [2]Tokyo Polytechtic University, Japan

S6-P034 **Magnetic Ion Substitution for Ti-sites in Ferroelectric $Bi_4Ti_3O_{12}$ and $BaBi_4Ti_4O_{15}$**
R. Suzuki[1], T. Shigyo[2], H. Kiyono[1], N. Adachi[3], T. Ota[3], J. Takahashi[1]; [1]Hokkaido University, Japan, [2]Hokkaido Research Organization, Japan, [3]Nagoya Institute of Technology, Japan

S6-P035 **Preferential Crystal Growth of (100)-oriented $BiFeO_3$ Films on Si Substrate**
M. Hayashi[1], S. Yasui[2], H. Funakubo[2], H. Uchida[1]; [1]Sophia University, Japan, [2]Tokyo Institute of Technology, Japan

S6-P036 **Effect of Lattice Misfit Strain on Crystal System and Ferroelectric Property of $BiFeO_3$ Epitaxial Thin Films**
K. Ujimoto[1], H. Izumi[2], T. Yoshimura[1], A. Ashida[1], N. Fujimura[1]; [1]Osaka Prefecture University, Japan, [2]Hyogo Prefectural Institute of Technology, Japan

S6-P037 **Influence of Electron Exchange on Dielectric Properties of (1-x)$CoFe_2O_4$-(x)$BaTiO_3$ Composites**
A. Khamkongkaeo[1], T. Yamwong[2], S. Maensiri[1]; [1]Khon Kaen University, Thailand, [2]National Metals and Materials Technology Center, Thailand

S6-P038 **Preparation and Electromagnetic Properties of Y-type Ferrite Composites**
M. Nakanishi[1], C. Yamaguchi[1], T. Fujii[1], J. Takada[1], T. Kikuchi[2]; [1]Okayama University, Japan, [2]University of Hyogo, Japan

S6-P039 **Structure and Magnetic Properties of $CuFe_{1-x}Mn_xO_2$ Solid Solution**
R. Fukatsu, T. Nozaki, K. Hayashi, Y. Miyazaki, T. Kajitani; Tohoku University, Japan

S6-P040 **Mn Doping Effect on Microstructure and Dielectric Properties of $BiFeO_3$-$BaTiO_3$ Ceramics Prepared by Solid State Reaction**
R. Kato, M. Moriya, W. Sakamoto, T. Yogo; Nagoya University, Japan

S6-P041 **Room Temperature Magneto-electric Effects of Cr_2O_3/$Cr_2O_{3\pm X}$/$LiNbO_3$/ $Cr_2O_{3\pm X}$/Cr_2O_3 Hetero Structure**
Y. Tsuboi, T. Yokota, S. Kito, R. Imura, M. Gomi; Nagoya Institute of Technology, Japan

S6-P042 **Synthesis and Phase Stability and Compression Behavior of Transition Metal Phosphide in High Pressure and Temperature**
H. Kubota[1], K. Niwa[1], M. Hasegawa[1], K. Kusaba[1], T. Yagi[2]; [1]Nagoya University, Japan, [2]University of Tokyo, Japan

S6-P043 **Optical Constants of (001), (110), and (111)-oriented Epitaxial $BiFeO_3$ Thin Films**
H. Shima[1], K. Sone[1], K. Tsutsumi[2], M. Suzuki[2], T. Tadokoro[3], H. Naganuma[4], T. Iijima[5], T. Nakajima[1], S. Okamura[1]; [1]Tokyo University of Science, Japan, [2]J. A. Woollam Japan, Japan, [3]Techno-Synergy, Inc., Japan, [4]Tohoku University, Japan, [5]National Institute of Advanced Industrial Science and Technology, Japan

Symposium 6

S6-P044 **Magnetic and Electric Field Induced Resistance Changes in SrFeO Thin Film**
S. Kito, T. Yokota, Y. Tsuboi, R. Imura, M. Gomi; Nagoya Institute of Technology, Japan

S6-P045 **An Optimization of Firing Temperature and Chromium Amount on Magnetic Properties of Strontium Hexaferrite**
A. A. Nourbakhsh[1], M. Nourbakhsh[2], M. Shaygan[1], M. Mozaffari[3], C. Gharibian[1]; [1]Islamic Azad University, Iran, [2]Taban Magnetic Materials Development Co, Iran, [3]Naghshejahan Higher Education Institute, Iran

S6-P046 **Magnetic Nanoscale Chessboard-type Domain Structures in the Mn-doped $CoFe_2O_4$**
M. Ohno, Y. Togawa[1], Y. Horibe[2], S. Mori[1]; [1]Osaka Prefecture University, Japan, [2]Rutgers University, USA

S6-P047 **Dielectric and Magnetic Properties of Y-Fe-O Films Prepared by MOCVD**
H. Masumoto, S. Taura, K. Tanaka; Tohoku University, Japan

S6-P048 **Synthesis and Characterization of Grain-Oriented Multiferroic Aurivillius Ceramics**
M. Palizdar, T. P. Comyn, A. J. Bell; University of Leeds, UK

S6-P049 **Synthesis and Properties of $Bi_{5-x}Sr_xTi_{3+x}Fe_{1-x-y}V_yO_{15}$ Ceramics by Solid State Reaction**
K. Kawada, T. Moriyama, A. Kan, H. Ogawa; Meijo University, Japan

S6-P050 **Ferroelectric Properties and Crystal Structure of $Bi_7Fe_3Ti_3O_{21}$ Ceramic in $Bi_4Ti_3O_{12}$-$BiFeO_3$ System**
H. Ogawa, T. Moriyama, A. Kan; Meijo University, Japan

Tuesday, November 16

Room: Event Hall

12:00 - 14:00

S6-P051 **Physical and Electrical Properties of Lead-Free $(Na_{0.5}K_{0.5})NbO_3$-$(Bi_{0.5}Na_{0.5})TiO_3$ Ceramics**
C.-H. Wang; Nan-Jeon Institute of Technology, Taiwan

S6-P052 **Physical and Electrical Properties of Lead-Free $(Bi_{0.5}Na_{0.5})TiO_3$-$Ba(Sn,Ti)O_3$ Ceramics**
C.-H. Wang; Nan-Jeon Institute of Technology, Taiwan

S6-P053 **Effect of Mn Doping on Piezoelectric Property of Lead-free (Na, K)NbO_3 Ceramics**
J. Kohara, K. Kakimoto, I. Kagomiya; Nagoya Institute of Technology, Japan

S6-P054 **Ferroelectric Property of $(Ba_{1-2x}Bi_{2x})(Ti_{1-x}M_x)O_3$ Ceramics**
K. Shiroki, N. Kumada, H. Ogiso, Y. Yonesaki, T. Takei, N. Kinomura, S. Wada; University of Yamanashi, Japan

S6-P055 **Mechanism of Grain Orientation in Bismuth Layered-Structure Ferroelectrics made by Templated Grain Growth**
K. Onodera, T. Kimura; Keio University, Japan

S6-P056 **The Mechanism of the Formation of Single-Crystalline Films by a Solid State Process**
D. Furuta, T. Kimura; Keio University, Japan

S6-P057 **Dielectric, Ferroelectric and Mechanical Properties of the Microwave Sintered Bi based High Temperature Piezoelectric Ceramics**
A. Rambabu, K. C. J. Raju; University of Hyderabad, India

S6-P058 **Piezoelectric Properties and Moisture-Resistance of Glass Added $K_{0.5}Na_{0.5}NbO_3$**
Y. Oba, R. Kobayashi, Y. Matsuo; FDK Corporation, Japan

S6-P059 **Processing and Study of Dielectric and Ferroelectric Nature of $BiFeO_3$ - Modified $Bi_4Ti_3O_{12}$**
A. Lisinska-Czekaj, D. Czekaj; University of Silesia, Poland

S6-P060 **Grain Size Dependence on Crystal Structure of Lead-free (Na,K)NbO_3 Ceramics**
Y. Shinkai, K. Kakimoto, I. Kagomiya; Nagoya Institute of Technology, Japan

S6-P061 **Preparation and Piezoelectric Properties of Lead-free $BaTiO_3$-Based Ceramics**
N. Matsumoto, H. Maiwa, T. Hayashi; Shonan Institute of Technology, Japan

S6-P062 **Fabrication and Evaluation of Mn-Substituted $Ba(Cu_{1/3}Nb_{2/3})O_3$ Ceramics**
Y. Kamimura[1], K. Yazawa[2], B.-Y. Lee[3], H. Funakubo[2], T. Iijima[3], H. Uchida[1]; [1]Sophia University, Japan, [2]Tokyo Institute of Technology, Japan, [3]National Institute of Advanced Industrial Science and Technology, Japan

S6-P063 **Phase Formation and Characterization of (1-x)PZT–xBNbT Ceramics**
N. Thongmee, A. Watcharapasorn, S. Jiansirisomboon; Chiang Mai University, Thailand

S6-P064 **A Role of Sintering Time on Microstructure and Electrical Properties of $Bi_{3.25}La_{0.75}(Ti_{1-x}W_x)_3O_{12}$ Ceramic**
P. Siprapa, A. Watcharapasorn, S. Jiansirisomboon; Chiang Mai University, Thailand

S6-P065 **Effect of Lead Zirconate Titanate Addition on Microstructure, Mechanical and Electrical Properties of Bismuth Sodium Lanthanum Titanate Ceramics**
P. Jaita, A. Watcharapasorn, S. Jiansirisomboon; Chiang Mai University, Thailand

S6-P066 **Fabrication of PZT Thick Films for 100 MHz Ultrasonic Transducer**
N. Kochi[1,2], T. Iijima[2], T. Nakajima[1], S. Okamura[1]; [1]Tokyo University of Science, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

S6-P067 **Synthesis and Characterization of $Ba(Cu_{1/2},Ta_{2/3})O_3$-$BaTiO_3$ Ceramics**
B.-Y. Lee[1], H. Funakubo[2], H. Uchida[3], S. Okamura[4], T. Iijima[1]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Tokyo Institute of Technology, Japan, [3]Sophia University, Japan, [4]Tokyo University of Science, Japan

S6-P068 **Sintering and Piezoelectric Properties of Lead-free $(K_{0.38}Na_{0.58}Li_{0.04})(Nb_{0.86}Ta_{0.10}Sb_{0.04})O_3$ Ceramics with Fe_2O_3 Doping**
Y.-P. Ok[1], H.-N. Ji[1], K.-S. Kim[1], W.-P. Tai[1], J.-H. Seol[2], I.-K. Hong[2], J.-S. Lee[2]; [1]Ulsan Fine chemical Industry Center, Korea, [2]University of Ulsan, Korea

S6-P069 **Domain Memory and Polarization Memory in an Acceptor-doped Ferroelectric**
D. Xue[1,2], J. Gao[1,2], X. Ren[1,2]; [1]Xi'an Jiaotong University, China, [2]National Institute for Materials Science, Japan

S6-P070 **Poling Field Dependence of Piezoelectric and Dielectric Properties in $(Li,Na)NbO_3$ Lead-Free Piezoelectric Ceramics**
R. Aoyagi[1], T. Ohashi[1], M. Maeda[1], M. Iwata[1], T. Shiosaki[2]; [1]Nagoya Institute of Technology, Japan, [2]Shibaura Institute of Technology, Japan

S6-P071 **Thermal Expansion and Polarization Behavior in Lead Titanate/Zinc Oxide Nanocomposite Ceramics**
R. Wongmaneerung[1], R. Yimnirun[2], S. Ananta[3]; [1]Maejo University, Thailand, [2]Suranaree University of Technology, Thailand, [3]Chiang Mai University, Thailand

S6-P072 Cancelled

S6-P073 **Direct Measurement of Piezoelectric Transverse Displacement for PZT Thick Film**
Y. Kashiwagi[1,2], T. Iijima[2], T. Aiso[3], T. Yamamoto[4], H. Funakubo[5], T. Nakajima[1], S. Okamura[1]; [1]Tokyo University of Science, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Toyo Corporation, Japan, [4]National Defense Academy, Japan, [5]Tokyo Institute of Technology, Japan

S6-P074 **Preparation of Single Phase Bismuth Niobium Based Perovskite-type Oxides**
A. Shimamura[1], N. Kumada[1], I. Fujii[1], K. Nakashima[1], M. Azuma[2], Y. Kuroiwa[3], S. Wada[1]; [1]University of Yamanashi, Japan, [2]Kyoto University, Japan, [3]Hiroshima University, Japan

S6-P075 **Microstructure Control of Barium Titanate Grain-Oriented Ceramics by Hydrothermal Treatment of Green Body and their Piezoelectric Properties**
R. Mori[1], K. Nakashima[1], I. Fujii[1], H. Hayashi[2], Y. Nagamori[2], Y. Yamamoto[2], S. Wada[1]; [1]University of Yamanashi, Japan, [2]Hayashi Chemical Industry Co., Ltd., Japan, [3]Konoshima Chemical Co., Ltd., Japan

Symposium 6

S6-P076 **Preparation of Bariumu Titanate – Potassium Niobate Solid Solution System Ceramics Using Spark Plasma Sintering and Their Piezoelectric Properties**
S. Shimizu[1], N. Kumada[1], K. Nakashima[1], I. Fujii[1], D. Tanaka[2], M. Furukawa[2], Y. Kuroiwa[3], T. S. Suzuki[4], T. Uchikoshi[4], Y. Sakka[4], S. Wada[1]; [1]University of Yamanashi, Japan, [2]TDK Co., Ltd., Japan, [3]Hiroshima University, Japan, [4]National Institute for Materials Science, Japan

S6-P077 **Microstructure and Piezoeletric Properties of Ca-Substituted $Ba(Ti_{0.9}Zr_{0.1})O_3$ Ceramics**
S. Ye, J. Fuh, L. Lu; National University of Singapore, Singapore

S6-P078 **Ferroelectric Properties of $Bi_{4.5}Na_{1-x}Ag_xNb_2WO_{15}$ Solid Solutions**
T. Moriyama, A. Kan, K. Kawada, H. Ogawa; Meijo University, Japan

S6-P079 Cancelled

S6-P080 **Microwave Dielectric Properties of $(Mg_{1/2}Co_{1/2})Al_2O_4$ Ceramics**
C.-H. Hsu, H.-H. Tung, C.-K. Hsu; National United University, Taiwan

S6-P081 **Microwave Dielectric Properties of $Mg(Zr_{0.05}Ti_{0.95})O_3$ Ceramics Doped with B_2O_3**
C.-F. Tseng, W.-Y. Hsu; National United University, Taiwan

S6-P082 **Fabrication and Characterization of Tunable Devices Using $(Ba,Sr)TiO_3$ Thin Films on α-Al_2O_3**
T. Nishida[1], H. Kimura[2], R. Onodera[1], M. Horita[1], M. Uenuma[1], Y. Ishikawa[1], Y. Uraoka[1,3]; [1]Nara Institute of Science Technology, Japan, [2]National Institute for Materials Science, Japan, [3]CREST, Japan

S6-P083 **Hf, Mn and Y Doped $Ba(Zn_{1/3}Nb_{2/3})O_3$ Ceramics**
M. Ayhan, K. Esin; Marmara University Göztepe Campus, Turkey

S6-P084 **Influence of Nonstoichiometry on Extrinsic Electrical Conduction and Microwave Dielectric Loss of $BaCo_{1/3}Nb_{2/3}O_3$ Ceramics**
M. Li[1], A. Feteira[1], M. Mirsaneh[1], S. Lee[2], M. T. Lanagan[2], C. A. Randall[2], D. C. Sinclair[1]; [1]The University of Sheffield, UK, [2]The Pennsylvania State University, USA

S6-P085 **Two Approaches of the Obtaining of Doped $Ba(Mg_{1/3}Ta_{2/3})O_3$ Microwave Ceramics**
S. Jinga[1], E. Andronescu[1], C. Jinga[1], D. Berger[1], C. Matei[1], C. Jinga[1], A. Ioachim[2]; [1]University "Politehnica" of Bucharest, Romania, [2]National Institute of Materials Physics, Romania

S6-P086 **Low-temperature Synthesis of Needle-like $NaNbO_3$ by a Molten NaOH Method**
S. Yamazoe, T. Kawawaki, T. Imai, T. Wada; Ryukoku University, Japan

S6-P087 **Modification of Microstructure and Mechanical Properties of Electroporcelain by Correction of Firing Curve**
P. Janusz; AGH University of Science and Technology, Poland

S6-P088 **Sintering and Nonlinear Dielectric Properties of $Ba_{0.6}Sr_{0.4}TiO_3$/MgO Composite Ceramics Prepared from Superfine Powders**
X.-F. Zhang[1], Q. Xu[1], D.-P. Huang[1], W. Chen[1], B.-H. Kim[2]; [1]Wuhan University of Technology, China, [2]Chonbuk National University, Korea

S6-P089 **Preparation of Oriented $Ba_{1-x}Ca_xTiO_3$ Material by Soft Chemical Process**
K. Kurokawa, X. Kong, Y. Ishikawa, Q. Feng; Kagawa University, Japan

S6-P090 **Synthesis of La-Co Substituted M-type Calcium Hexaferrite by Polymerizable Complex Method**
T. Kikuchi[1], T. Nakamura[1], T. Yamasaki[1], M. Nakanishi[2], T. Fujii[2], J. Takada[2], Y. Ikeda[2]; [1]University of Hyogo, Japan, [2]Okayama University, Japan, [3]Research Institute of Production Development, Japan

S6-P091 **Effect of Mechanical Milling Treatment on the Pressureless Sintering of $KSr_2Nb_5O_{15}$ Ceramics**
Y. Iwai; Nagaoka National College of Technology, Japan

S6-P092 **Investigations of a Morphology Control of Perovskite Oxide Using Solvothermal Reaction**
K. Nakashima, T. Goto, S. Iwatsuki, M. Kera, I. Fujii, S. Wada; University of Yamanashi, Japan

S6-P093 **Electroceramics Microstructure Fractal Characterization**
V. V. Mitic[1,2], V. B. Pavlovic[3], V. Paunovic[1], J. Purenovic[1], J. Nedin[1], M. Miljkovic[1]; [1]University of Nis, Serbia, [2]Serbian Academy of Sciences and Arts, Serbia, [3]University of Belgrade, Serbia

S6-P094 **Characterization of Mechanical and Electric Properties of $BaTiO_3$ Thin Films Grown by Aerosol Deposition**
H. K. Kim, H. J. Kim, S. M. Nam; Kwangwoon University, Korea

S6-P095 **Effect of Hardness of Starting Powder on Growth of Ceramic Thick Films by Aerosol Deposition**
C. W. Kim, H. J. Kim, S. M. Nam; Kwangwoon University, Korea

S6-P096 **Fabrication of Al_2O_3 Films Using Aerosol Deposition Method and Their Characterization**
Y. Uemichi, K. Nishikawa, Y. Sato, S. Yoshikado; Doshisha University, Japan

S6-P097 **Effect of Dopant, Crystal Orientation, and Space Charge Layer on Oxygen Diffusion in $Bi_4Ti_3O_{12}$ Ceramics**
I. Sakaguchi[1], K. Matsumoto[1], H. Nagata[2], Y. Hiruma[2], H. Haneda[1], T. Takenaka[2]; [1]National Institute for Materials Science, Japan, [2]Tokyo University of Science, Japan

S6-P098 **Photoelectron Diffraction Study on Polar ZnO Surface**
J. Williams, N. Ohashi, K. Kobayashi, I. Pis, M. Kobata; National Institute for Materials Science, Japan

S6-P099 **High-Pressure Raman Study of $Al^{14}N$ and $Al^{15}N$ Epitaxial Thin Films on Sapphire Substrates**
H. Yusa, T. Ohgaki, N. Ohashi, I. Sakaguchi, H. Haneda; National Institute for Materilas Science, Japan

S6-P100 **Atomic-Resolution Imaging of Domain Polarity and Domain Wall Structure of $PbTiO_3$ Thin Film**
T. Kiguchi[1], K. Aoyagi[1], T. J. Konno[1], S. Utsugi[2], T. Yamada[2], H. Funakubo[2]; [1]Tohoku University, Japan, [2]Tokyo Institute of Technology, Japan

S6-P101 **Dielectric Properties and Related Microstructures in (1-x)$BiFeO_3$-x$RTiO_3$ (R=Pb and Sr)**
R. Fujii[1], T. Ozaki[1], M. Soda[2], S. Mori[1]; [1]Osak Prefecture University, Japan, [2]Osaka University, Japan

S6-P102 **Phonon Dynamics and Phase Transition in $Ba_{1-x}Ca_xTiO_3$ Studied by Raman Scattering**
T. Shimizu[1], D. Fu[2], H. Taniguchi[1], T. Taniyama[1], M. Itoh[1]; [1]Tokyo Institute of Technology, Japan, [2]Shizuoka University, Japan

S6-P103 **Observation of Fracture Surface of PMN-PT Single Crystal by Scanning Probe Microscope**
A. Matsunaga, J. Tatami, T. Wakihara, K. Komeya, T. Meguro; Yokohama National University, Japan

S6-P104 **Electric Field Thermopower Modulation in an Anatase TiO_2 Based Thin Film Transistor**
Y. Nagao[1], A. Yoshikawa[1], K. Koumoto[1], T. Kato[2], Y. Ikuhara[2,3], H. Ohta[1,4]; [1]Nagoya University, Japan, [2]Mutsuno, Japan, [3]The University of Tokyo, Japan, [4]Japan Science and Technology Agency, Japan

S6-P105 **Development of the Electromagnetic Induction Type Micro Air Turbine Generator Using MEMS and Multilayer Ceramic Technology**
A. Iiduka, K. Ishigaki, Y. Takikawa, T. Ohse, K. Saito, F. Uchikoba; Nihon University, Japan

S6-P106 **Heat Generation Ability in AC Magnetic Field for $Y_3Fe_5O_{12}$-based Garnet Ferrite**
H. Hirazawa[1], H. Aono[2], K. Moritani[2], T. Naohara[2], T. Maehara[2], Y. Watanabe[2]; [1]Niihama National College of Technology, Japan, [2]Ehime University, Japan

S6-P107 **Preparation of Barium Titanate Porous Ceramics and their Application to Piezoelectric Energy Harvesting**
Y. Shimura, P. Pulpan, I. Fujii, K. Nakashima, S. Wada; University of Yamanashi, Japan

S6-P108 **Continuous Radiation of X-ray by Thermal Excitation Using Multiple $LiTaO_3$ Single Crystals**
H. Honda[1], S. Fukao[1], Y. Guan[1], Y. Nakanishi[1], Y. Sato[1], Y. Ito[2], S. Yoshikado[1]; [1]Doshisha University, Japan, [2]Kyoto University, Japan

S6-P109 **Synthesis and Opto-Electrical Properties of ABO_2 (A=Li, Na; B=Y, Yb)**
Y. Zhao, Y. Natsume, N. Sawaguchi, M. Sasaki; Muroran Institue of Technology, Japan

Symposium 6

S6-P110 **TaN Thin Film Fabricated Using a Low Vacuum Magnetron Sputtering System**
T. Hashizume, A. Saiki, K. Terayama; University of Toyama, Japan

S6-P111 **Synthesis of Sn_3N_4 by Direct Nitriding Reaction in High Pressure and Temperature**
K. Okuno[1], K. Niwa[1], K. Kusaba[1], M. Hasegawa[1], T. Yagi[2]; [1]Nagoya Univ., Japan, [2]The Univ. of Tokyo, Japan

S6-P112 **Effect of Ir, Zr and In Substitution on Structure and Dielectric Properties of $Bi_{1.5}Zn_{0.92}Nb_{1.5}O_{6.92}$ Pyrochlore Ceramics**
M. Ayhan, O. Oguz; Marmara University, Turkey

S6-P113 **Sintering of the Pure $K_{0.48}Na_{0.52}NbO_3$ Lead-free Piezoceramics With $KNbO_3$ as Sintering Aid and Its Piezoelectric Properties**
Y.-J. Dai, T. Sun, Y.-L. Li, X.-W. Zhang; Tianjin University, China

S6-P114 **Ferroelastic Domain Switching in Lead Titanate Zirconate Ceramics: Temperature Dependence and Fracture Toughness Variations**
Y. W. Li[1], X. L. Zhou[1], F. X. Li[1,2]; [1]Peking University, China, [2]Chinese Academy of Sciences, China

Symposium 7: Optical Ceramics

Main Organizers
- Shinichi Kikkawa, Hokkaido University, Japan
- Franck Tessier, CNRS-University of Rennes 1, France
- Setsuhisa Tanabe, Kyoto University, Japan

Co-Organizers
- John Ballato, Clemson University, USA
- Marco Bettinelli, University of Verona, Italy
- Alexandr Gektin , Institute for Scintillation Materials, NAS, Ukraine
- Akio Ikesue, World Lab Co., Japan
- Ludmila I. Isaenko, Institute of Geology and Mineralogy, Russia
- Bert Hintzen, Eindhoven University of Technology, Netherlands
- Masayoshi Mikami, Mitsubishi Chemical Group, Japan
- Jianbei Qiu, Kunming University of Science and Technology, China
- Kiyoshi Shimamura, NIMS, Japan
- Frédéric Smektala, University of Bourgogne, France
- Masahide Takahashi, Osaka Prefecture University, Japan
- Kenji Toda, Niigata University, Japan
- Mikio Higuchi, Hokkaido University, Japan
- Dae Ho Yoon , Sungkyunkwan University, Korea

Oral Session

Monday, November 15

Room: 804

14:15 - 16:00: Transparent Ceramics

Chairs: John Ballato (Clemson University, USA) and Akio Ikesue (World-Lab Co., Ltd., Japan)

14:15 - 15:00
S7-001 **Progress In Ceramic Nd:YAG Laser (Invited)**
A. Ikesue, Y. L. Aung; World-Lab Co., Ltd., Japan

15:00 - 15:15
S7-002 **Stoichiometry Control for Fabricating High Optical Quality YAG Ceramics**
J. Zhang[1,2], H. Gong[1], D. Tang[1], J. Ma[1], S. Wang[2]; [1]Nanyang Technological University, Singapore, [2]Chinese Academy of Sciences, China

15:15 - 15:30
S7-003 **Sintering and Microstructure in Exceptionally Dense, Fine Grained Transparent Nd:YAG Ceramics**
G. L. Messing, A. Stevenson; The Pennsylvania State University, USA

15:30 - 16:00
S7-004 **Fabrication of Sub-Micrometer-Grain Size Transparent Sesquioxide Ceramics (Invited)**
J. Ballato, K. Serivalsatit; Clemson University, USA

16:00 - 16:15 **Break**

16:15 - 17:45: Nitrides and Oxynitrides

Chairs: Setsuhisa Tanabe (Kyoto University, Japan) and Jianbei Qiu (Kunming University of Science and Technology, China)

16:15 - 16:45
S7-005 **Development of (oxy)Nitrides as Photocatalysts for Overall Water Splitting under Visible Light (Invited)**
K. Domen; The University of Tokyo, Japan

Symposium 7

16:45 - 17:00

S7-006 **Tuning of the Band-gap of $LaSi_3N_5$ Ternary Nitrides via Eu-doping: Experimental and DFT Study**

Z. Lences[3], L. Benco[3], P. Sajgalik[3], Y. Zhou[2], K. Hirao[2], D. Velic[3]; [1]Slovak Academy of Sciences, Slovakia, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]International Laser Center, Slovakia

17:00 - 17:15

S7-007 **Luminescence Properties of Eu^{2+}:$SrCN_2$ and its Use for the Synthesis of New Green/Orange Phosphors.**

S. Yuan[1,2], Y. Yang[2], F. Chevire[1], F. Tessier[1], X. Zhang[1], G. Chen[2]; [1]Université de Rennes 1, France, [2]East China University of Science and Technology, China

17:15 - 17:30

S7-008 **Luminescent Properties of Orange-Red Emitting $SrAlSi_4N_7$:Eu^{2+} Nitride Phosphors Synthesized by Gas Pressure Sintering**

J. Ruan, R-J. Xie, N. Hirosaki, T. Takeda; National Institute for Materials Science, Japan

17:30 - 17:45

S7-009 **Layer Type Rare Earth Doping in AlN Based Phosphor**

T. Takeda[1], N. Hirosaki[1], R.-J. Xie[1], K. Kimoto[1], M. Saito[2]; [1]National Institute for Materials Science, Japan, [2]Tohoku University, Japan

Tuesday, November 16

Room: 804

9:15 - 10:30: Chalcogenides

Chairs: Kiyoshi Shimamura (National Institute for Materials Science, Japan) and Frederic Smektala (ICB Laboratoire Interdisciplinaire Carnot de Bourgogne, France)

9:15 - 9:45

S7-010 **Chalcogenides for Optical Sensor Applications (Invited)**

V. Nazabal[1], F. Charpentier[1], M.-L. Anne[1], P. Camy[2], J.-L. Doualan[2], J. Troles[1], H. Lhermite[1], J. Charrier[1], L. Brilland[3], C. Boussard-Pledel[1], L. Quetel[4], K. L. Pierres[5], J. L. Adam[1], B. Bureau[1]; [1]Université de Rennes 1, France, [2]Université de Caen, France, [3]PERFOS France, [4]IDIL, Lannion, France, [5]BRGM, France

9:45 - 10:15

S7-011 **Demonstration of Experimental Infrared Spectral Broadening in Chalcogenide As_2S_3 Suspended Core Microstructured Optical Fibers (Invited)**

F. Smektala[1], M. El-Amraoui[1], J. C. Jules[1], G. Gadret[1], J. Fatome[1], B. Kibler[1], F. Desevedavy[1], G. Qin[2], T. Suzuki[2], Y. Ohishi[2], C. Polacchini[3], I. Skrypatchev[3], Y. Messaddeq[3], G. Renversez[4], M. Szpulak[5]; [1]ICB Laboratoire Interdisciplinaire Carnot de Bourgogne, France, [2]Toyota Technological Institute, Japan, [3]Instituto de Quimica, UNESP, Brazil, [4]Institut Fresnel, France, [5]Institute of Physics Wroclaw University, Poland

10:15 - 10:30

S7-012 **Powdered and Bulk (Oxy) Sulfides Processing for Optical Applications**

C. Chlique, O. M. Conanec, X. H. Zhang, F. Tessier; Université de Rennes 1, France

10:30 - 10:45 **Break**

10:45 - 11:45: Functional Materials I

Chairs: Masahide Takahashi (Osaka Prefecture University, Japan) and Franck Tessier (CNRS - University of Rennes, France)

10:45 - 11:15

S7-013 **Luminescent Micro-Composites on Patterned Ferroelectrics (Invited)**

J. V. García-Santizo[1], P. Molina[1], M. O. Ramírez[1], K. Lemanski[2], W. Strek[2], P. J. Dereń[2], L. E. Bausá[1]; [1]Universidad Autónoma de Madrid, Spain, [2]Polish Academy of Science, Poland

11:15 - 11:30

S7-014 **Characterization of Induced Structures in LiTaO3 Using Femtosecond Laser Pulses**

M. Kumatoriya[1], M. Nakabayashi[2], K. Miura[2], K. Hirao[2], A. Ando[1]; [1]Murata Manufacturing Co., Ltd., Japan, [2]Kyoto University, Japan

11:30 - 11:45

S7-015 **Czochralski Growth of $Tb_3Sc_{2-x}Lu_xAl_3O_{12}$ Single Crystals for the Optical Isolators**

A. Latynina[1], A. Funaki[1,2], T. Hatanaka[1,2], K. Naoe[2], E. G. Víllora[1], K. Shimamura[1]; [1]National Institute for Materials Science, Japan, [2]Fujikura Co, Ltd., Japan

14:15 - 16:00: Functional Materials II

Chairs: Setsuhisa Tanabe (Kyoto University, Japan) and Jianbei Qiu (Kunming University of Science and Technology, China)

14:15 - 14:45

S7-016 **Photoluminescence Properties of Eu^{3+} Doped $LaPO_4$ Inverse Opal Photonic Crystals (Invited)**

J. Qiu[1], Z. Yang[1], J. Zhou[2], X. Huang[2], Z. Song[1], D. Zhou[1], Z. Yin[1]; [1]Kunming University of Science and Technology, China, [2]Tsinghua University, China

14:45 - 15:15

S7-017 **Glass-ceramics for IR Applications (Invited)**

L. Calvez, X.-H. Zhang, J. Lucas; Université de Rennes 1, France

15:15 - 15:30

S7-018 **Preparation and Optical Property of Glass Ceramics Containing Ruby Crystals**

J. Ueda[1], S. Tanabe[1,2]; [1]Kyoto University, Japan, [2]Japan Science and Technology Agency-PRESTO, Japan

15:30 - 15:45

S7-019 **Optical Properties and Photoactivity of The Pigmentary TiO_2 Doped with P_2O_5, K_2O, Al_2O_3 and Sb_2O_3**

M. Glen, B. Grzmil; West Pomeranian University of Technology, Poland

15:45 - 16:00

S7-020 **Nonstoichiometry and Valence State of Ti or Ta in the Colored Oxynitrides $LaTiO_2N$ and $LaTaON_2$**

K. Shinnou[1], Y. Masuda[1], H. Ando[1], T. Kawasaki[1], H. Fujito[1], M. Mito[1], K. Murai[1], G. I. N. Waterhouse[2], J. B. Metson[2], T. Moriga[1]; [1]The University of Tokushima, Japan, [2]University of Auckland, New Zealand

16:00 - 16:15 **Break**

16:15 - 17:45: Functional Materials 3

Chairs: John Ballato (Clemson University, USA) and Masahide Takahashi (Osaka Prefecture University, Japan)

16:15 - 16:30

S7-021 **Transparent Polycrystalline Alumina Ceramics By Magnetic – Field – Assisted Slip Casting**

S. Wang, X. Mao, S. Shimai, H. Yi, J. Guo; Chinese Academy of Sciences, China

16:30 - 16:45

S7-022 **Surface Roughness Effect on Mechanical and Elastic Moduli of Polycrystalline Scandia, Erbia and Yttria as Determined by Nanoindentation**

I. C. Albayrak[1], M. W. Barsoum[1], O. Yeheskel[1,2]; [1]Drexel University, USA, [2]Nuclear Research Center Negev, Israel

16:45 - 17:00

S7-023 **Sb-doped SnO_2 Thin Films as Transparent Electrodes for Inorganic Electroluminescence Devices**

K. Ueda, Y. Kishigawa, Y. Takano; Kyushu Institute of Technology, Japan

17:00 - 17:15

S7-024 **Spectral Modification from Yb^{3+} Doped ZnO with Li^+ Addition for Silicon Solar Cell**

S. Ye[1], S. Tanabe[1], J. Qiu[2]; [1]Kyoto University, Japan, [2]South China University of Technology, China

Symposium 7

17:15 - 17:30
S7-025 **Plasmon Enhanced Fluorescence Microscopy Using Silver Coated Grating**
J. Nishii[1], K. Kinkata[2], K. Tawa[2]; [1]Hokkaido University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

17:30 - 17:45
S7-026 **Rewritable Holographic Structures Formed in Organic-Inorganic Hybrid Materials by Photothermal Processing**
M. Takahashi; Osaka Prefecture University, Japan

Wednesday, November 17

Room: 804

9:00 - 10:30: President-Designated Lecture and Phosphors I

Chairs: Dae Ho Yoon (Sungkyunkwan University, Korea) and
Masayoshi Mikami (Mitsubishi Chemical Group Science and Technology Research Center, Inc., Japan)

9:00 - 9:30
S7-027 **Oxynitrides as Emerging Functional Materials (President - Designated)**
S. Kikkawa[1], Y. Masubuchi[1], T. Motohashi[1], T. Takeda[2]; [1]Hokkaido University, Japan, [2]National Institute of Materials Science, Japan

9:30 - 10:00
S7-028 **Theoretical Approach for White-LED Phosphors : from Crystal Structures to Optical Properties (Invited)**
M. Mikami, N. Kijima; Mitsubishi Chemical Group Science and Technology Research Center, Inc., Japan

10:00 - 10:30
S7-029 **Synthesis of Oxynitrde Phosphor for White LEDs (Invited)**
D. H. Yoon; Sungkyunkwan University, Korea

10:30 - 10:45 **Break**

10:45 - 11:45: Phosphors II

Chairs: Dae Ho Yoon (Sungkyunkwan University, Korea) and
Masayoshi Mikami (Mitsubishi Chemical Group Science and Technology Research Center, Inc., Japan)

10:45 - 11:00
S7-030 **The Effect of Flux Addition on the Morphology and Size of Yellow-emitting Ca-α-SiAlON Phosphor**
S.-H. Lee, Y.-J. Park; Korea Institute of Materials Science, Korea

11:00 - 11:15
S7-031 **Photoluminescence and Cathodoluminescence of Nitride Phosphors**
R.-J. Xie, N. Hirosaki, T. Takeda, B. Dierre, T. Sekiguchi; National Institute for Materials Science, Japan

11:15 - 11:30
S7-032 **Luminescence Properties of YAG:Ce Powder Prepared by Mechanochemical Doping of Nitrogen**
M. Sopicka-Lizer[1], D. Michalik[1], J. Plewa[2]; [1]Silesian University of Technology, Poland, [2]Fachhoschule Muenster, Germany

11:30 - 11:45
S7-033 **Preparation and Optical Properties of Transparent Ce^{3+}:GdYAG Ceramic Phosphors for White LED**
S. Nishiura[1], S. Tanabe[1], K. Fujioka[2], Y. Fujimoto[2]; [1]Kyoto University, Japan, [2]Osaka University, Japan

13:15 - 14:30: Phosphors III

Chairs: Kenji Toda (Niigata University, Japan) and Jianbei Qiu (Kunming University of Science and Technology, China)

13:15 - 13:30
S7-034 **Aluminum Addition Effect on $BaCa_2MgSi_2O_8$: Eu^{2+} Phosphor Material**
Y. Yonesaki, N. S. Bmohama, T. Takei, N. Kumada, N. Kinomura; University of Yamanashi, Japan

13:30 - 13:45
S7-035 **Synthesis and Luminescence Properties of Eu^{2+}-activated Sr_3SiO_5 Phosphers**
Y. Nakamura, T. Watari, T. Torikai, M. Yada; Saga University, Japan

13:45 - 14:00
S7-036 **Photoluminescence Properties of Novel $BaLa_2WO_7$: Eu^{3+} Phosphors**
S.-A. Yan, C.-S. Hwang[1], Y.-S. Chang[2], Y.-H. Chang[1], M. Yoshimura[1]; [1]National Cheng Kung University, Taiwan, [2]National Formosa University, Taiwan

14:00 - 14:15
S7-037 **Synthesis of $(Gd_{0.95}Eu_{0.05})(OH)_3$ Nanomaterials and Their Transformation into Single Crystalline $(Gd_{0.95}Eu_{0.05})_2O_3$ with Enhanced Photoluminescence Properties**
Q. Zhu[1,2], J-G. Li[1,2], X. Li[1], X. Sun[1]; [1]Northeastern University, China, [2]National Institute for Materials Science, Japan

14:15 - 14:30
S7-038 **Origin of Blue Luminescence for $(H_3O)Al_3(SO_4)_2(OH)_6$:Cu Synthesized under Hydrothermal Condition**
Y. Kuroki, N. Iwata, T. Okamoto, M. Takata; Nagaoka University of Technology, Japan

14:30 - 14:45 **Break**

14:45 - 16:00: Phosphors IV

Chairs: Kenji Toda (Niigata University, Japan) and Kiyoshi Shimamura (National Institute for Materials Science, Japan)

14:45 - 15:00
S7-039 **Growth and Optical Characterization of the Nnew Single Crystal $Gd_{1-x}Yb_xF_3$**
V. Vasyliev[1], E. G. Villora[1], P. Molina[1], N. Shiran[2], K. Shimamura[1]; [1]National Institute for Materials Science, Japan, [2]Institute for Scintillation Materials, Ukraine

15:00 - 15:15
S7-040 **Afterglow Characterization of $CaTiO_3$: Pr^{3+} Prepared by Solar Furnace**
Y. Katayama, S. Tanabe; Kyoto university, Japan

15:15 - 15:30
S7-041 **Luminescence Switching in $CePO_4$:Tb^{3+} by Redox Reaction**
M. Kitsuda, S. Fujihara; Keio University, Japan

15:30 - 15:45
S7-042 **Synthesis and Luminescent Properties of Sr_2SiO_4 Phosphers**
H. Nishioka, T. Watari, T. Eguchi, M. Yada; Saga University, Japan

15:45 - 16:00
S7-043 **Direct Preparation of Strontium Aluminate Phosphor Plate by Reactive Infiltration Method**
T. Watari, K. Ikeue, T. Torikai, M. Yada; Saga University, Japan

Symposium 7

Poster Session

Monday, November 15

Room: Event Hall

12:00 - 14:00

S7-P001 **Fabrication of a White Light Emitting Diode by Doping Gallium into ZnO Nanowire on p-GaN Substrate**
C.-H. Chen[1], S.-P. Chang[1], C.-Y. Lu[1], S.-J. Chang[1], C.-L. Hsu[2]; [1]National Cheng Kung University, Taiwan, [2]National University of Tainan, Taiwan

S7-P002 **Enhanced Field Emissions Ability of Well-aligned ZnO Nanowire Arrays Based on UV Illumination**
C.-H. Chen[1], C.-Y. Lu[1], S.-P. Chang[1], S.-J. Chang[1], C.-L. Hsu[2]; [1]National Cheng Kung University, Taiwan, [2]National University of Tainan, Taiwan

S7-P003 **Investigation of Influence of Stress and Heat on Luminescence Property of EL Phosphors ZnS**
R. Kawanishi, N. Sawaguchi, M. Sasaki; Muroran Institute of Technology, Japan

S7-P004 **Thin-Film Electroluminescence Device Utilizing In-doped Y_2O_3 by RF Magnetron Sputtering**
M. Hayakawa, H. Ogawa, A. Kan; Meijo University, Japan

S7-P005 **Synthesis and Electroluminescence Properties of In-doped Zn_2SiO_4 Thin Film by RF Sputtering**
A. Kan[1], H. Ogawa[1], N. Ikeda[2], Y. Terakura[2]; [1]Meijo University, Japan, [2]KICTEC INC., Japan

S7-P006 **Preparation of Indium and Cobalt Doped $ZnGa_2O_4$ Thick Films by Spray Deposition Technique**
Y. Terakura[1], N. Ikeda[1], H. Ogawa[2], A. Kan[2], K. Inoue[3], A. Fujita[2]; [1]KICTEC INC., Japan, [2]Meijyo University, Japan, [3]Mie Prefecture Industrial Reserch Institute, Japan

S7-P007 **Sol-Gel Deposition and Characterization of In- and Co-doped $MgGa_2O_4$ Phosphor Films**
N. Ikeda[1], Y. Terakura[1], H. Ogawa[2], A. Kan[2], K. Inoue[3], A. Fujita[2]; [1]KICTEC INC., Japan, [2]Meijyo University, Japan, [3]Mie Prefecture Industrial Reserch Institute, Japan

S7-P008 **Shape Control of Nd-Doped YVO_4 Single Crystals by AHFZ Growth**
D. H. Kwon, M. Nagao, S. Watauchi, I. Tanaka; University of Yamanashi, Japan

S7-P009 **Float Zone Growth and Spectral Properties of Nd:$LaVO_4$ Single Crystals**
S. Yomogida[1], M. Higuchi[1], T. Ogawa[2], S. Wada[2], J. Takahashi[1]; [1]Hokkaido University, Japan, [2]RIKEN, Japan

S7-P010 **Study of Blue Photoluminescence in Titanium Doped Al_2O_3 Single-Crystals**
T. Daimon, H. Naruse, H. Watanabe, H. Oda, A. Yamanaka; Chitose Institute of Science and Technology, Japan

S7-P011 **Effect of Transition Metals on Optical Properties of β-Ga_2O_3: Time-Resolved Spectroscopy**
D. Yasukawa, H. Wakai, H. Oda, A. Yamanaka; Chitose Institute of Science and Technology, Japan

S7-P012 **High-crystalline Upconverting Layers Fabricated by Environmentally Friendly Solution Methods**
T. Wakabayashi, K. Teshima, S. H. Lee, S. Oishi; Shinshu University, Japan

S7-P013 **Crystal Growth of Gallium Oxynitride Nanofibers in Sub-mm Length**
Y. Masubuchi, R. Yamaoka, T. Motohashi, S. Kikkawa; Hokkaido University, Japan

S7-P014 **Photoluminescence Property and Crystal Structure of Layered Aluminium Oxynitride Prepared through Citrate Route**
T. Hata, Y. Masubuchi, T. Motohashi, S. Kikkawa; Hokkaido University, Japan

S7-P015 **Synthesis of $AgTaN_2$ by Exchange Reaction**
A. Miura[1], M. Lowe[2], B. M. Leonard[2], Y. Masubuchi[3], S. Kikkawa[3], R. Dronskowski[1], F. J. DiSalvo[2]; [1]Aachen RTWH University, Germany, [2]Cornell University, USA, [3]Hokkaido University, Japan

S7-P016 **Light Propagation through Femtosecond Laser Induced Waveguide inside Lithium Tantalate Single Crystal**
M. Nakabayashi[1], M. Kumatoriya[2], K. Miura[1], M. Sakakura[3], M. Nishi[1], Y. Shimotsuma[3], K. Hirao[1]; [1]Kyoto University, Japan, [2]Murata Manufacturing Co., Ltd., Japan, [3]Kyoto University, Japan

S7-P017 **The Evolution of The Dielectric Properties of $Ca_{12}Al_{14}O_{33}$ with Temperature**
E. Castel[1], T. I. Shin[1], M. Maglione[2], E. G. Villora[1], K. Shimamura[1]; [1]National Institute for Materials Science, Japan, [2]Institut de Chimie de la Matière Condensée de Bordeaux, France

S7-P018 **Dielectric Films Formed by Aerosol Deposition and its Theoretical Consideration for Optical Filters**
S. Hirose, H. Tsuda, Y. Ezuka, M. Kobiyama, J. Akedo; National Institute of Advanced Industrial Science and Technology, Japan

S7-P019 **High Pressure Spark Plasma Sintering of Transparent Zirconia and its Optical Properties**
H. B. Zhang, B.-N. Kim, K. Morita, H. Yoshida, K. Hiraga; National Institute for Materials Science, Japan

S7-P020 **Fabrication of Transparent Y_2O_3 Ceramics by N_2-HIP Sintering**
C. Kikkawa, S. Tsurumaki, N. H. Khusaini, T. Gomisawa, N. Hotta; Niigata University, Japan

S7-P021 **Fabrication of Transparent Y_2O_3 Ceramics by Ar-HIP Sintering**
N. H. B. Khusaini, K. Akimoto, N. Rokuta, N. Hotta; Niigata University, Japan

S7-P022 **Transmittance of AlN Ceramics Sintered with $Ca_3Al_2O_6$ and Carbon**
M. Kamitamari, T. Honma, Y. Kuroki, T. Okamoto, M. Takata; Nagaoka University of Technology, Japan

S7-P023 **Effect of Sintering Atmosphere on Translucency of AlN Ceramics**
T. Honma, M. Kamitamari, Y. Kuroki, T. Okamoto, M. Takata; Nagaoka University of Technology, Japan

S7-P024 **Investigation into $Na_{1-x}Sr_xTaO_{3-x}N_x$ Solid Solution Photocatalysts Aiming at Water Splitting Under Visible Light**
K. Ueda, H. Kato, M. Kakihana; Tohoku University, Japan

S7-P025 **Photocatalytic Property of Metal Ion-Substituted $BiVO_4$**
R. Yanagisawa, H. Kato, M. Kakihana; Tohoku University, Japan

S7-P026 **Synthesis and Characterization of Na – Ta – O – N Photocatalyst Compounds By Soft Chemistry Method**
H. Hatakeyama, M. Nishiya, K. Uemtsu, T. Ishigaki, K. Toda, M. Sato; Niigata University, Japan

S7-P027 **Water Splitting into H_2 and O_2 on $MgTa_2O_6$ Photocatalyst with Trirutile Structure**
T. Yokota, H. Kato, M. Kakihana; Tohoku University, Japan

S7-P028 **Doped Lutetium Silicates Scintillators Prepared by Sol-Gel Method. The Effect of Stoichiometry on Phase Relations and Luminescent Properties**
D. Niznasky[1], A. Begnamini[2], R. Kucerkova[3], M. Nikl[3]; [1]Charles University, Czech Republic, [2]Università degli Studi di Pavia, Italy, [3]Institute of Physics AS CR v. v. i., Czech Republic

S7-P029 **Preparation and Fluorescence Properties of Ti^{4+} -Doped Lithium Silicates and Germanates**
T. Sato, M. Higuchi, K. Katsura, Y. Tsubota, J. H. Kanek, J. Takahashi; Hokkaido University, Japan

S7-P030 **Synthesis, Crystal Structure and Photoluminescence of Ti^{4+}-Doped Magnesium Tin Oxyborate Solid Solutions, $Mg_5Sn_{1-x}Ti_xB_2O_{10}$**
T. Kawano, H. Yamane; Tohoku University, Japan

S7-P031 **Photoluminescent and Long-Lasting Phosphorescence in Bazirite-Type Crystals**
K. Iwasaki[1], Y. Takahashi[1], H. Masai[2], R. Ihara[1], T. Fujiwara[1]; [1]Tohoku University, Japan, [2]Kyoto University, Japan

S7-P032 **Long Persistent Properties of Calcium Germanate $CaGe_2O_5$**
H. Shimizu, T. Ishigaki, K. Uematsu, K. Toda, M. Sato; Niigata University, Japan

Symposium 7

S7-P033 **White Light Emitting Mesoporous Carbon-Silica Nanocomposites**
A. Matsumura[1], Y. Ishii[1], Y. Ishikawa[1,2], S. Kawasaki[1]; [1]Nagoya Institute of Technology, Japan, [2]Japan Fine Ceramics Center, Japan

S7-P034 **Synthesis of White Light Emitting Mesoporous Carbon-silica Nanocomposite**
K. Sato[1], Y. Ishikawa[1,2], A. Matsumura[2], Y. Ishii[2], S. Kawasaki[2]; [1]Japan Fine Ceramics Center, Japan, [2]Nagoya Institute of Technology, Japan

S7-P035 **Preparation of Light Emitting Materials by Thermal Treatment of Rice Husks**
Y. Ishikawa[1], A. Matsumura[1], Y. Ishii[1], S. Kawasaki[1]; [1]Nagoya Institute of Technology, Japan, [2]Japan Fine Ceramics Center, Japan

S7-P036 **Preparation of YAG:Ce-Dispersed Transparent CaF_2 Ceramics and Application to White LEDs**
H. Ishizawa, Y. Ezura; Nikon Corporation, Japan

S7-P037 **Synthesis of Novel Borophosphate Phosphors for White Light LEDs**
N. Sato, K. Uemtsu, T. Ishigaki, K. Toda, M. Sato; Niigata University, Japan

S7-P038 **Emission Color Tunning of $SrSi_2O_2N_2:Eu^{2+}$ Phosphor for White Light Emitting Diodes**
T. Y. Choi, Y. H. Song, D. H. Yoon; Sungkyunkwan University, Korea

S7-P039 **Color Tunigng of $Ca_{0.9-x}Si_2O_2N_2$: $Eu^{2+}_{0.1}$ Oxynitrde Phosphor as a Function of Mn^{4+}_x Concentration**
Y. H. Song[1], T. Y. Choi[1], D. H. Yoon[1,2]; [1]Sungkyunkwan University, Korea

S7-P040 **Glass-Ceramic Phosphors for White Light Generation Using Blue LED**
S. Yi, J. Heo; Pohang University of Science & Technology, Korea

S7-P041 **Synthesis of Phosphorescence Material By Modified Sol-Gel Process**
C. Karakaş, N. Solak, S. Aydın; Istanbul Technical University, Turkey

S7-P042 **Synthesis of Transition Metal Oxide Doped $SrAl_2O_4:Eu^{2+}$, Dy^{3+} Phosphors**
M. O. Arıkan, N. Solak, S. Aydın; Istanbul Technical University, Turkey

S7-P043 **Preparation and Optical Properties of Tb^{3+}-doped GeO_2-ZrO_2 Thin Films by Sol-Gel Method**
T. Sanada[1], M. Abe[1], K. Yamamoto[2], N. Wada[3], K. Kojima[1]; [1]Ritsumeikan University, Japan, [2]Industrial Research Center of Shiga Prefecture, Japan, [3]Suzuka National College of Technology, Japan

S7-P044 **Investigation of Temperature Dependence on Emission Properties of Sr-Al-O:Eu^{2+} Phosphor Synthesized Using Elemental Diffusion from Substrate**
K. Komatsu[1], A. Nakamura[1,2], A. Kato[1], S. Ohshio[1], H. Akasaka[1], H. Saitoh[1]; [1]Nagaoka Univ. Tech., Japan, [2]Chubu Chelest Co., Ltd., Japan

S7-P045 **Luminescence Properties of Ga_2O_3-ZnO-MnO with Various Oxide Additives**
N. Wada[1], T. Okuno[1], Y. Nishimura[1], Y. Noda[1], K. Kojima[2]; [1]Suzuka National College of Technology, Japan, [2]Ritsumeikan University, Japan

S7-P046 **Preparation of Plate-like Nano-phosphors with Infrared Luminescence from Nd^{3+} exchanged Zeolites**
S. Kato[1], T. Matsumoto[1], H. Itoh[2], T. Okamura[2], T. Yamada[2], Y. Goto[3]; [1]Industrial Technology Center of Tochigi Prefecture, Japan, [2]Yoshizawa Lime Industry CO., LTD., Japan, [3]Ryukoku University, Japan

S7-P047 **Photoluminescence of $(YGd)_2O_3$: Eu Phosphors Produced by Nanoparticle-seeded Flame-assisted Spray Pyrolysis**
R. Kubrin[1], J. Huang[1,2], F. Moglia[3], K. Petermann[3], W. Bauhofer[1]; [1]Hamburg University of Technology, Germany, [2]Fraunhofer Institute for Integrated Systems and Device Technology, Germany, [3]University of Hamburg, Germany

S7-P048 **Crystal Chemistry of Silicate Phosphors**
M. Inoue, K. Uematsu, T. Ishigaki, K. Toda, M. Sato; Niigata University, Japan

S7-P049 **Photoluminescence Properties of Rare-Earth Ion Doped Glass and Glass-Ceramics in the System Na_2O-Y_2O_3-SiO_2**
Y. Nojima[1], T. Okura[1], H. Monma[2]; [1]Kogakuin University, Japan, [2]Hosei University, Japan

S7-P050 **Synthesis of High Efficiency $NaSi_xAlO_{4+2x}:Eu_{0.1}$ (x=1, 2, 3, 4, 5) Phosphors for UV-LED**
D. S. Jo[1], K. Toda[2], M. Takaki[1], D. H. Yoon[1]; [1]Sungkyunkwan University, Korea, [2]Niigata University, Japan

S7-P051 **Studies on Photoconductive Property of Eu^{2+} Activated $SrAl_2O_4$ as a Function of Excitation-Wavelength and Temperature**
T. Nakanishi[1], S. Tanabe[2]; [1]Nagaoka University of Technology, Japan, [2]Kyoto University, Japan

S7-P052 **Pre-evaluation Method for the Spectroscopic Properties of YAG Bulk Materials by Sol-gel Synthetic Powder**
K. Fujioka[1], Y. Fujimoto[1], S. Motokoshi[2], H. Fujita[1], M. Nakatsuka[2]; [1]Osaka University, Japan, [2]Institute for Laser Technology, Japan

S7-P053 **Synthesis and Characterization of Perovskite Type Phosphors**
Y. Shimokawa[1], K. Inoue[2], S. Iwata[1], S. Sakaida[1], S. Honda[1], Y. Iwamoto[1]; [1]Nagoya Institute of technology, Japan, [2]Mie Prefecture Industrial Research Institute, Japan

S7-P054 **Synthesis and Characterization of Low-Voltage Cathodoluminescent Gadolinium Oxide-based Red Phosphors**
Y. Inata[1], K. Inoue[2], Y. Ishihara[1], S. Hashimoto[1], S. Honda[1], Y. Iwamoto[1]; [1]Nagoya Institute of Technology, Japan, [2]Mie Prefecture Industrial Research Institute, Japan

S7-P055 **Effect of Annealing Temperature on the Photoluminescence Properties of $(Y_{0.5}Gd_{0.5})VO_4$:Eu Phosphors**
M. H. Heo[1], K. Y. Kim[1], Y. Kim[2], K. Park[1]; [1]Sejong University, Korea, [2]Dankook University, Korea

S7-P056 **Crystal Structure Dependence on the Photoluminescence Properties of $(Y_{0.5}Gd_{0.5})PO_4$:Eu Phosphors Synthesized by Solution Combustion Method**
M. H. Heo[1], Y. Kim[2], K. Park[1]; [1]Sejong University, Korea, [2]Dankook University, Korea

S7-P057 **Compositional Dependence on the Photoluminescence Properties of $(Y_{1-x}Gd_x)_{0.94}Eu_{0.06}PO_4$ ($0 \le x \le 1.0$) Phosphors Synthesized by Solution Combustion Method**
K. Y. Kim[1], M. H. Heo[1], Y. Kim[2], K. Park[1]; [1]Sejong University, Korea, [2]Dankook University, Korea

S7-P058 **Development of Zeolite-derived Novel Phosphors**
M. Aoyama[1], K. Inoue[2], S. Honda[1], Y. Iwamoto[1]; [1]Nagoya Institute of Technology, Japan, [2]Mie Prefecture Industrial Research Institute, Japan

S7-P059 **Wet Chemical Synthesis and Photoluminescence Properties of $YVO_4:Bi^{3+},Eu^{3+}$ Nanophosphors**
H. Ogata[1], T. Watanabe[1], S. Takeshita[1], T. Isobe[1], T. Sawayama[2], S. Niikura[2]; [1]Keio University, Japan, [2]SINLOIHI Company Limited, Japan

S7-P060 **Yttrium and Terbium Doped Zirconia Nanopowders with Photoluminescent Properties Prepared via Microwave-hydrothermal Route**
J. Kaszewski[1], D. Moszynski[1], E. Borowiak-Palen[1], S. Yatsunenko[2], W. Lojkowski[2]; [1]West Pomeranian University of Technology, Poland, [2]Polish Academy of Sciences, Poland

S7-P061 **5 nm Structures in Photosensitive Glass-Ceramic Produced by Direct Laser Writing**
S. Jinga[1], E. Pavel[2], E. Andronescu[1], C. Jinga[1], B. S. Vasile[1]; [1]University "Politehnica" of Bucharest, Romania, [2]Storex Technologies, Romania

S7-P062 **Near Infrared Quantum Cutting In Yb^{3+} Doped $Tb_{0.81}Ca_{0.19}F_{2.81}$ Single Crystal**
P. Molina, V. Vasyliev, E. G. Víllora, K. Shimamura; National Institute for Materials Science, Japan

Symposium 8

Symposium 8: Glasses - Science & Technology, and Photonic Applications-

Main Organizers
- Kiyotaka Miura, Kyoto University, Japan
- Shigeru Yamamoto, Nippon Electric Glass Co., Ltd., Japan
- Himanshu Jain, Lehigh University, USA
- Kohei Kadono, Kyoto Institute of Technology, Japan

Co-Organizers
- Tomoko Akai, AIST, Japan
- Jong Heo, Pohang University of Science and Technology, Korea
- Kazuyuki Hirao, Kyoto University, Japan
- Hiroyuki Inoue, University of Tokyo, Japan
- Toru Kamihori, Asahi Glass Co., Ltd., Japan
- Peter Kazansky, University of Southampton, UK
- Takayuki Komatsu, Nagaoka University of Technology, Japan
- Wilfried Linz, Schott AG, Germany
- Jun Matsuoka, University of Shiga Prefecture, Japan
- Masayuki Nogami, Nagoya Institute of Technology, Japan
- Carlo Pantano, Pennsylvania State University, USA
- Jianrong Qiu, Zhejiang University, China
- Masahiro Tatsumisago, Osaka Prefecture University, Japan
- Tetsuji Yano, Tokyo Institute of Technology, Japan
- Toshinobu Yoko, Kyoto University, Japan
- Yuanzheng Yue, Aalborg Universitet, Denmark

Oral Session

Monday, November 15

Room: 805

14:15 - 15:45: Mechanical Properties

Chair: Satoshi Yoshida (University of Shiga Prefecture, Japan)

14:15 - 14:45
S8-001 **Fracture and Tensile Strength of Oxide Glass Fibers (Invited)**
Y. Yue, M. D. Lund; Aalborg University, Denmark

14:45 - 15:15
S8-002 **Mechanical Behavior of Ge_xSe_{1-x} Glasses from Room Temperature to the Transition Range (Invited)**
T. Rouxel[1], Y. Gueguen[1], P. Gadaud[2], J.-C. Sangleboeuf[1], V. Keryvin[1]; [1]Université de Rennes 1, France, [2]Laboratoire de Mécanique et Physique des Matériaux, France

15:15 - 15:30
S8-003 **Structure and Mechanical Property of Hydrous Alminosilicate Glass by Molecular Dynamics Simulation**
T. Taniguchi[1], Y. Fukasawa[1], S. Ito[1,2]; [1]Asahi Glass Co., Ltd., Japan, [2]Tokyo Institute of Technology, Japan

15:30 - 15:45
S8-004 **Investigation of the Role of Free Zircon in the Floor Tile Glaze and it's Elimination from that Glaze Composition**
D. Ghahremani; Islamic Azad University, Iran

15:45 - 16:15 **Break**

16:15 - 17:45: Glass Formation and Crystallization

Chairs: Tsuyoshi Honma (Nagaoka Universtiy of Technology, Japan) and
Takashi Wakasugi (Kyoto Institute of Technology, Japan)

16:15 - 16:30
S8-005 **Formation of the δ-TeO_2 Phase in the Ternary TeO_2-WO_3-CdO System**
A. E. Ersundu, G. Karaduman, M. Çelikbilek, N. Solak, S. Aydın; Istanbul Technical University, Turkey

16:30 - 16:45
S8-006 **Investigation of the Glass Formation in the TeO_2-CdO System**
G. Karaduman, M. Çelikbilek, A. E. Ersundu, N. Solak, S. Aydın; Istanbul Technical University, Turkey

16:45 - 17:00
S8-007 **Crystallization Kinetics of TeO_2–B_2O_3 Glasses**
D. Yardımcı, M. Çelikbilek, A. E. Ersundu, N. Solak, S. Aydın; Istanbul Technical University, Turkey

17:00 - 17:15
S8-008 **Low Thermal Expansion Coefficient Cordierite Glass Ceramics**
S. Jiemsirilers, E. Rijirakamort, T. Wasanapiarnpong; Chulalongkorn University, Thailand

17:15 - 17:30
S8-009 **$LiFePO_4$ Glass-ceramic for LiB Cathode Synthesized through Chemical Vapor Deposition**
K. Yuki, T. Nagakane, H. Yamauchi, T. Seto, A. Sakamoto; Nippon Electric Glass Co. Ltd.

17:30 - 17:45
S8-010 **Formation of Highly-Oriented Fresnoite-Type $Sr_2TiSi_2O_8$ by Surface Crystallization**
Y. Yamazaki[1], Y. Takahashi[1], H. Masai[2], R. Ihara[1], T. Fujiwara[1]; [1]Tohoku University, Japan, [2]Kyoto University, Japan

Tuesday, November 16

Room: 805

9:00 - 10:30: Micro/nano Scale Processing

Chair: Masaaki Sakakura (Innovative Collaboration Center of Kyoto University, Japan)

9:00 - 9:30
S8-011 **Exraordinary Modifications and Structures in Glass Produced by Ultrafast Laser Writing (Invited)**
P. G. Kazansky[1], M. Beresna[1], C. Corbari[1], Y. Shimotsuma[2], M. Sakakura[2], K. Miura[2], K. Hirao[2], J. Qiu[3]; [1]University of Southampton, UK, [2]Kyoto University, Japan, [3]Zhejiang University, China

9:30 - 9:45
S8-012 **Molecular Radial Orientation Arrangement by Femtosecond Laser Irradiation inside Sodium Germanate Glass**
X. Wang[1], M. Sakakura[2], K. Miura[1], K. Hirao[1]; [1]Kyoto University, Japan, [2]Innovative Collaboration Center of Kyoto University, Japan

9:45 - 10:00
S8-013 **Silicon Precipitation in Glass Via Photoinduced Reaction Using Femtosecond Laser**
M. Nishimura, S. Kanehira, M. Sakakura, Y. Shimotsuma, K. Miura, K. Hirao; Kyoto University, Japan

10:00 - 10:15
S8-014 **Ultrafast Manipulation of Self-assembled Nanostructure in Glass**
Y. Shimotsuma[1], M. Sakakura[1], K. Miura[1], K. Hirao[1], P. G. Kazansky[2]; [1]Kyoto University, Japan, [2]University of Southampton, UK

Symposium 8

10:15 - 10:30

S8-015 **Glass Imrinting for Highly-functional Optical Devices**

J. Nishii[1], H. Hashima[2], Y. Tanaka[3]; [1]Hokkaido University, Japan, [2]Nihon Yamamura Glass, Japan, [3]Panasonic, Japan

10:30 - 10:45 **Break**

10:45 - 11:30: Glass Formation, Coating, and Thin Films on Glass

Chair: Naoyuki Kitamura (National Institute of Advanced Industrial Science and Technology, Japan)

10:45 - 11:15

S8-016 **Smart Coatings on Glass for Energy-saving and Indoor Comfort (Invited)**

M. Kanehira[1,2]; [1]Shanghai Institute of Ceramics, China, [2]National Institute of Adcanced Industrial Science and Technology, Japan

11:15 - 11:30

S8-017 **Alumino-Silicate Thin Films and Amorphous Chalcogenide/Alumino-Silicate Structures Prepared by Pulsed Laser Deposition**

P. Nemec[1], V. Nazabal[2], J.-P. Guin[2], D. Vesely[1], A. Kalendova[1], M. Allix[3], S. Zhang[2], C. Drasar[1]; [1]University of Pardubice, Czech Republic, [2]Université de Rennes 1, France, [3]Site Haute Température, France

14:15 - 15:45: Optical Properties and Structure I

Chair: Masayuki Nishi (Kyoto University, Japan)

14:15 - 14:30

S8-019 **Emission Property of Sn-Doped Phosphate Glass for LED Application**

H. Masai[1], Y. Takahashi[2], R. Ihara[2], T. Fujiwara[2], Y. Tokuda[1], T. Yoko[1], S. Matsumoto[3]; [1]Kyoto University, Japan, [2]Tohoku University, Japan, [3]Asahi Glass Co., Ltd. Research Center, Japan

14:30 - 14:45

S8-020 **The Ultraviolet and Visible Luminescence of Te in the Tetrahedral Network Borophosphate–silicate Glasses**

Z. Song, Z. Yang, D. Zhou, Z. Yin, K. Lou, J. Shang, J. Qiu; Kunmin University of Technology, China

14:45 - 15:00

S8-021 **Optical Absorption Spectra of Binary Alkali Silicates Doped with Cupric Ion in the Temperature Range from 300 to 1200 K**

J. Matsuoka, A. Shoji, S. Yoshida, T. Sugawara; The University of Shiga Prefecture, Japan

15:00 - 15:15

S8-022 **Optical and Thermal Properties of Silver Bismuth Phosphate Glasses**

N. Kitamura[1], K. Fukumi[1], J. Nakamura[2], T. Hidaka[2], T. Ikeda[2], H. Hashima[2], J. Nishii[3]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Nihon Yamamura Glass, Co. Ltd., Japan, [3]Hokkaido University, Japan

15:15 - 15:30

S8-023 **High Resolution XANES Study on Local Structures of Iron Ions in Borosilicate Glass**

S. Nishida[1], S. Nakane[1], H. Yamazaki[1], S. Yamamoto[1], T. Okajima[2], K. Yamashita[3], S. Takeda[4], S. Nose[4], S. Ishida[4], L. Li[5], S. Kuwamoto[5], Y. Urushihara[5], K. Yokoyama[5,6], J. Matsui[5,6], N. Umesaki[7]; [1]Nippon Electric Glass Co., Ltd., Japan, [2]Kyushu Synchrotron Light Research Center, Japan, [3]University of Hyogo, Japan, [4]SPring-8 Service Co., Ltd., Japan, [5]Hyogo Science and Technology Association, Japan, [6]Kobe University, Japan, [7]SPring-8, Japan

15:30 - 15:45

S8-024 **The Effect of Chromium Oxide on Optical Spectroscopy of Sodium Silicate Glasses**

B. Mirhadi, B. Mehdikhani; Imam Khomeini International University, Iran

15:45 - 16:15 **Break**

16:15 - 17:45: Static and Dynamic Properties of Glass

Chairs: Yasuhiko Benino (Okayama University, Japan) and
Taketoshi Taniguchi (Research Center, Asahi Glass Co., Ltd., Japan)

16:15 - 16:45
S8-025 **The Static and Dynamic Properties of Silica at the Crystal-Amorphous Interface: Insight from Computer Simulations (Invited)**
W. Kob[1], T. Stuhn[2], J. Horbach[3], K. Binder[4]; [1]University Montpellier 2, France, [2]MPIP, Germany, [3]DLR, Germany, [4]Inst. fur Physik, Germany

16:45 - 17:00
S8-027 **Melt Solidification in the Ceramic System $CaO-Al_2O_3-SiO_2$**
V. Lutsyk, A. Zelenaya, V. Savinov; RAS, Russia

17:00 - 17:15
S8-026 **Atmosphere's Effect in the Mixed Conduction in Tungsten Phosphate Glass System**
I. Oliva, A. Masuno, H. Inoue; the University of Tokyo, Japan

17:15 - 17:30
S8-028 **Understanding the Composition Dependence of the Fragility of $AgI-Ag_2O-M_xO_y$ Glassy Systems**
M. Aniya; Kumamoto University, Japan

17:30 - 17:45
S8-029 **Boson Peak of Alkali Borate Glass**
S. Kojima, S. Aramomi, T. Sunaoshi, Y. Matsuda, M. Kodama; University of Tsukuba, Japan

Wednesday, November 17

Room: 805

9:00 - 10:45: In-flight Melting Technology I

Chairs: Hiroyuki Inoue (Institute of Industrial Science, University of Tokyo, Japan) and
Shigeru Yamamoto (Nippon Electric Glass Co., Ltd., Japan)

9:00 - 9:30
S8-030 **Future of Glass Melting - Innovation through the In-flight Melting Technique - (Invited)**
S. Inoue[1], T. Watanabe[2], T. Yano[2], O. Sakamoto[3], K. Satoh[4], T. Iseda[5]; [1]National Institute for Materials Science, Japan, [2]Tokyo Institute of Technlogy, Japan, [3]Asahi Glass Co., Ltd., Japan, [4]Toyo Glass Co., Ltd., Japan, [5]New Glass Forum, Japan

9:30 - 9:45
S8-031 **1ton/d Large Scale Experimental In-Flight Glass Melter and Some Operation Results of the Melter**
M. Iwamoto[1], K. Satoh[1], K. Kaneko[1], A. Hamada[1], M. Fujiwara[1], Y. Ebihara[1], O. Sakamoto[2], C. Tanaka[2]; [1]Toyo Glass Co.,Ltd, Japan, [2]Aasahi Glass Co., Ltd., Japan

9:45 - 10:00
S8-032 **Development of Simulation Code for the In-flight Melting Process**
S. Kawachi[1], T. Iseda[1], T. Watanebe[2]; [1]New Glass Forum, Japan, [2]Tokyo Institute of Technlogy, Japan

10:00 - 10:15
S8-033 **Formation and Properties of In-flight Melted Glasses**
T. Yano[1], J. Taguchi[1], D. Morishima[1], T. Watanabe[1], K. Satoh[2], M. Iwamoto[2], K. Kaneko[3], C. Tanaka[3], O. Sakamoto[3]; [1]Tokyo Institue of Technology, Japan, [2]Toyo Glass Co. Ltd., Japan, [3]Asahi Glass Co. Ltd., Japan

10:15 - 10:30
S8-034 **In-Situ Observation of Soda-Lime-Silica Glass Melts Prepared by In-Flight Melting Glass Melter**
D. Morishima[1], J. Taguchi[1], S. Shibata[1], T. Yano[1], M. Iwamoto[2], K. Satoh[2], K. Kaneko[2]; [1]Tokyo Institute of Technology, Japan, [2]Toyo Glass Co.,Ltd, Japan

Symposium 8

10:30 - 10:45
S8-035 **Gas Analysis of Bubbles in Soda-Lime Glasses Synthesized by In-Flight Melting Process**
J. Taguchi[1], T. Yano[1], M. Iwamoto[2], K. Satoh[2], K. Kaneko[2]; [1]Tokyo Institute of Technology, Japan, [2]Toyo Glass Co.,Ltd, Japan

10:45 - 11:00 **Break**

11:00 - 12:00: In-flight Melting Technology II

Chair: Kohei Kadono (Kyoto Institute of Technology, Japan)

11:00 - 11:15
S8-036 **Application of the In-flight Melting Technology Using RF Plasma to an Alkaline Free Borosilicate Glass**
O. Sakamoto, C. Tanaka, S. Miyazaki, N. Shinohara, S. Ohkawa; Aasahi Glass Co., Ltd., Japan

11:15 - 11:30
S8-037 **Thermal Plasma Generation for In-Flight Glass Melting**
T. Watanabe, M. Tanaka, T. Matsuura; Tokyo Institute of Technology, Japan

11:30 - 11:45
S8-038 **Investigation of In-Flight Melting Behavior of Granulated Glass Raw Material by Multi-Phase AC Arc Plasma**
M. Tanaka, Y. Tsuruoka, Y. Liu, T. Watanabe, J. Taguchi, T. Yano; Tokyo Institute of Technology, Japan

11:45 - 12:00
S8-039 **Discharge Mechanism of Multi-Phase AC Arc for In-Flight Glass Melting**
T. Matsuura, M. Tanaka, Y. Tsuruoka, T. Watanabe; Tokyo Institute of Technology, Japan

13:15 - 15:00: Optical Properties and Structure II

Chairs: Tomokatsu Hayakawa (Nagoya Institute of Technology, Japan) and
Jianbei Qiu (Kunmin University of Technology, China)

13:15 - 13:45
S8-040 **Structure and Emission Properties of Heavy Metal Oxide Glasses in the PbO-Bi_2O_3-Ga_2O_3 System (Invited)**
J. Heo; Pohang University of Science and Technology, Korea

13:45 - 14:00
S8-041 **Synthesis of Ca-α-SiAlON:Eu^{2+} Phosphors Dispersed Glasses**
H. Segawa[1], S. Ogata[1,2], H. Yoshimizu[1,2], N. Hirosaki[1], S. Inoue[1,2]; [1]National Institute for Materials Science, Japan, [2]University of Tsukuba, Japan

14:00 - 14:15
S8-042 **Population and Rate Equation Analyses for Energy Transfer between Rare-Earth Ions in Ga_2S_3-GeS_2-Sb_2S_3 Glasses**
M. Ichikawa, Y. Ishikawa, T. Wakasugi, K. Kadono; Kyoto Institute of Technology, Japan

14:15 - 14:30
S8-043 **Sintering Process of Eu Doped Luminescent Glass Prepared from Porous Glass**
T. Akai[1], M. Murakami[1], M. Yamashita[1], T. Okajima[2], N. Umesaki[3]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Kyushu Synchrotron Light Research Center, Japan, [3]Japan Synchrotron Radiation Research Institute, Japan

14:30 - 14:45
S8-044 **Influence of Rare-earths on the Nucleation of PbS Quantum Dots in Glasses**
S. Shim, C. Liu, Y. K. Kwon, J. Heo; Pohang University of Science and Technology (POSTECH), Korea

14:45 - 15:00

S8-045 **Optical Properties and Structure of Pr^{3+}-Doped LiF-$Al(PO_3)_3$ Glasses as Scattered Neutron Scintillator for Nuclear Fusion Diagnostics**

T. Murata[1,2], S. Fujino[3], H. Yoshida[4], Y. Arikawa[2], T. Nakazato[2], T. Shimizu[2], N. Sarukura[2], M. Nakai[2], T. Norimatsu[2], H. Azechi[2], K. Kamada[5], Y. Usuki[5], T. Suyama[6], A. Yoshikawa[7], N. Sato[8], H. Kan[8]; [1]Kumamoto University, Japan, [2]Osaka University, Japan, [3]Kyushu University, Japan, [4]Ceramic Research Center of Nagasaki, Japan, [5]Furukawa Co. Ltd., Japan, [6]Tokuyama Corporation, Japan, [7]Tohoku University, Japan, [8]Hamamatsu Photonics K.K., Japan

15:00 - 15:15 **Break**

15:15 - 16:15: Optical Properties and Structure III

Chair: Tomoko Akai (National Institute of Adavanced Industrial Science and Technology, Japan)

15:15 - 15:45

S8-046 **Broadband Spectral Modification of Solar Spectrum by Using Rare-earth Doped Glasses for Photovoltaics (Invited)**

J. Qiu[1,2], J. Zhou[1], Y. Song[1]; [1]Zhejiang University, China, [2]South China University of Technology, China

15:45 - 16:00

S8-047 **Site-Selective Excitation and Fluorescence of Nd^{3+} Ion in Oxide Glasses for Spherical Cavity Laser**

M. Saito, T. Yano, R. Yamaguchi, T. Kishi, S. Shibata; Tokyo Institute of Technology, Japan

16:00 - 16:15

S8-048 **Doping Effects of Transition Metal Ions on Magnetic and Optical Properties of EuO-Al_2O_3-SiO_2 Glasses**

Y. Yasuoka, T. Hayakawa, M. Nogami; Nagoya Institute of Technology, Japan

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 - 14:00

S8-P001 **Floor Tile Glass-Ceramic Glaze for Improvement of the Resistance to Surface Abrasion**

M. Gajek, J. Lis, J. Partyka, M. Wójczyk; AGH University of Science and Technology, Poland

S8-P002 **Intrinsic Strength of Sodium Borosilicate Glass Fibers by Using a Two-point Bending Technique**

Y. Nishikubo, S. Yoshida, T. Sugawara, J. Matsuoka; The University of Shiga Prefecture, Japan

S8-P003 **Estimation of Mechanical Properties by the Vickers Indentation Test for Ag^+/Na^+ Ion-exchanged Glass**

Y. Nomiya[1], T. Wakasugi[1], J. Nishii[2], K. Kadono[1]; [1]Kyoto Institute of Technology, Japan, [2]Hokkaido University, Japan

S8-P004 **Indentation Rheology for Soda-lime Glass Around the Glass Transition Temperature**

N. Hakiri[1], R. Kikuchi[1], Y. Kato[2], A. Takada[2], H. Muto[1], A. Matsuda[1], M. Sakai[1]; [1]Toyohashi University of Technology, Japan, [2]Asahi Glass Co., Japan

S8-P005 **Simulations of Sulfate Ions in Soda-lime-silicate Glass Melts**

H. Inoue, A. Masuno; The University of Tokyo, Japan

S8-P006 **Sintering and Crystallization of CaO-MgO-Al_2O_3-SiO_2(R_2O) Glass-Ceramic Matrix Composite Reinforced with ZrO_2 Particle**

M. Rezvani[1], F. Vahidian; University of Tabriz, Iran

S8-P007 **Optical Characterization of ZnO-Al_2O_3-SiO_2 System Glass-Ceramics**

T. Matsumura, T. Wakasugi, K. Kadono; Kyoto Institute of Technology, Japan

Symposium 8

S8-P008 **Micro- and Nano-Scale Deformations in Optically Transparent Glass-Ceramics with Fresnoite $Ba_2TiSi_2O_8$ Nanocrystals**
K. Shinozaki, T. Honma, T. Komatsu; Nagaoka University of Technology, Japan

S8-P009 **Glass-Ceramic Material from the SiO_2-Al_2O_3-CaO System Using Sugar-Cane Bagasse Ash (SCBA)**
S. R. Teixeira[1], M. Romero[2], J. M. Rincón[2], R. S. Magalhães[1], A. E. Souza[1], G. T. A. Santos[1], R. A. Silva[1]; [1]Universidade Estadual Paulista, Brazil, [2]Instituto Eduardo Torroja de Ciencias de la Construcción, Spain

S8-P010 **Investigation of Crystal Growth and the Orientation in ZnO-precipiatated Glass-ceramics**
T. Ueno[1], H. Masai[2], R. Ihara[1], Y. Takahashi[1], T. Fujiwara[1]; [1]Tohoku University, Japan, [2]Kyoto University, Japan

S8-P011 **Examination of Crystalline Morphology of TiO_2 Glass-ceramics**
K. Hirakawa[1], H. Masai[2], R. Ihara[1], Y. Takahashi[1], T. Fujiwara[1]; [1]Tohoku University, Japan, [2]Kyoto University, Japan

S8-P012 **Fabrication and Photoluminescent Property of Transparent Nanocrystallized-Glass in Li_2O-ZnO-GeO_2 System**
M. Ando[1], Y. Takahashi[1], K. Iwasaki[1], H. Masai[2], R. Ihara[1], T. Fujiwara[1]; [1]Tohoku University, Japan, [2]Kyoto University, Japan

S8-P013 **Effects of Crystallization Conditions on Conductivity of $Na_5YSi_4O_{12}$-type Glass-Ceramics**
K. Kawada[1], T. Okura[1], H. Monma[2], K. Yamashita[3]; [1]Kogakuin University, Japan, [2]Hosei University, Japan, [3]Tokyo Medical and Dental University, Japan

S8-P014 **B_2O_3-Additive Effect on Glass Stability and Crystallization Behavior in Stoichiometric $Ba_2TiGe_2O_8$ Glass**
Y. Yamazaki[1], H. Masai[2], Y. Takahashi[1], R. Ihara[1], T. Fujiwara[1]; [1]Tohoku University, Japan, [2]Kyoto University, Japan

S8-P015 **Nucleation and Nanometric Inhomogeneity in Niobiogermanate Glass: In-Situ Inelastic Light Scattering and TEM Studies**
Y. Takahashi[1], M. Osada[2], H. Masai[3], R. Ihara[1], T. Fujiwara[1]; [1]Tohoku University, Japan, [2]National Institute for Materials Science, Japan, [3]Kyoto University, Japan

S8-P016 **Effect of Ultrasonic Surface Treatment on the Transparency and Orientation of Fresnoite Surface Crystallization**
A. Endo, S. Sakida, Y. Benino, T. Nanba; Okayama University, Japan

S8-P017 **Controlled Crystalization and Characterization of LS_2 Glass**
O. Guney, E. Demirkesen; Istanbul Technical University, Turkey

S8-P018 **Analysis of Viscoelastic Flow in Tin Phosphate Glass**
J. Cha, H. Takebe; Ehime University, Japan

S8-P019 **Redox Equilibria of Ag in PbO-B_2O_3 and Bi_2O_3-B_2O_3 melts**
Y. Noguchi, T. Wakasugi, K. Kadono; Kyoto Institute of Technology, Japan

S8-P020 **Electronic Polarizability and Structure Analysis of High ZnO-Containing Bismuth Borate Glasses**
T. Inoue, T. Honma, T. Komatsu; Nagaoka Universtiy of Technology, Japan

S8-P021 **Defect Formation and Annihilation in Iron-doped Soda-lime Silicate Glass by X-ray Irradiation and Heat-treatment**
Y. Taniguchi, K. Ishihara, T. Isaji, T. Wakasugi, K. Kadono; Kyoto Institute of Technology, Japan

S8-P022 **Effect of Water on the Electrochemical Reactions and Bubble Formation in Soda-Lime-Silica Glass: DC Electrochemical Treatment**
T. Sato, T. Yano, S. Shibata; Tokyo Institute of Technology, Japan

S8-P023 **The Effect of Melting Temperatures on the Optical Absorption of Soda Lime Silicate Glass Doped with MnO_2**
C. Kedkaew[1], N. Srisittipokakun[1], J. KaewKhao[2], P. Limsuwan[1,3]; [1]King Mongkut's University of Technology Thonburi, Thailand, [2]Nakhon Pathom Rajabhat University, Thailand, [3]Thailand Center of Excellence in Physics, CHE, Thailand

S8-P024 **Heat Capacity of $72SiO_2$-$9B_2O_3$-$10Al_2O_3$-9MO (M=Mg, Ca, Sr and Ba) Glasses and Melts**
T. Sugawara, Y. Hamano, S. Yoshida, J. Matsuoka; The University of Shiga Prefecture, Japan

S8-P025 **Magnetic Properties of Nanoparticles Locally Precipitated Inside Transparent Silicate Glass Using Femtosecond Laser**
S. Nakashima, K. Sugioka, K. Midorikawa; RIKEN, Japan

S8-P026 **Structural Investigations of Bismuth Borosilicate and Aluminoborosilicate Glasses**
A. Saini[1], A. Khanna[1], J. W. Zwanziger[2], F. Gonzalez[3], D. Hernandez[3]; [1]Guru Nanak Dev University, India, [2]Dalhousie University, Canada, [3]University of Cantabria, Spain

S8-P027 **Raman Spectroscopic Study of Structure and Crystallization Behavior of ZnO-MoO_3-B_2O_3 Glasses**
L. Aleksandrov[1], T. Komatsu[1], R. Iordanova[2], Y. Dimitriev[3]; [1]Nagaoka University of Technology, Japan, [2]Institute of General and Inorganic Chemistry, Bulgaria, [3]University of Chemical Technology and Metallurgy, Bulgaria

S8-P028 **Structural Analyses of Er^{3+}-doped Ga_2S_3-GeS_2-Sb_2S_3 Glasses by EXAFS and Raman Spectroscopies**
M. Ichikawa[1], K. Fukumi[2], H. Kageyama[2], T. Wakasugi[1], K. Kadono[1]; [1]Kyoto Institute of Technology, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

S8-P029 **Sutructual Investigation of Bismuth Borate Glasses Containing Halides**
Y. Hoko, S. Sakida, Y. Benino, T. Nanba; Okayama University, Japan

S8-P030 **The Effect of Titanium on the Structure of Sodium Borophosphate Glasses**
N.-J. Kim[1], S.-H. Im[1], D.-H. Kim[1], Y.-S. Lee[2], S.-C. Lee[2], Y.-S. Kim[2], B.-K. Ryu[1]; [1]Pusan National University, Korea, [2]LG Electronics, Korea

S8-P031 **Effects of Substituting B_2O_3 for P_2O_5 on the Structure and Properties of P_2O_5-SnO Glass Systems**
D.-H. Kim[1], N.-J. Kim[1], S.-H. Im[1], Y.-S. Lee[2], S.-C. Lee[2], Y.-S. Kim[2], B.-K. Ryu[1]; [1]Pusan National University, Korea, [2]LG Electronics, Korea

S8-P032 **Preparation and Lithium Ion Conductivity of New Lithium Niobium Phosphate Glasses and Glass-Ceramics**
T. Okada, T. Honma, T. Komatsu; Nagaoka University of Technology, Japan

S8-P033 **Phase Separation of Borosilicate Glass Containing Phosphorus**
Y. Ohtsuki, S. Sakida, Y. Benino, T. Nanba; Okayama University, Japan

S8-P034 **Luminescence Properties of YBO_3:Eu^{3+} Doped Borosilicate Glasses Crystallized Under Shear Stress**
S. Masamune, Y. Daiko, M. Kobune, A. Minesige, T. Yazawa; University of Hyogo, Japan

S8-P035 **Fabrication and Characterization of Er^{3+}-doped Tellurite Glass Waveguides by Ag^{+}-Na^{+} Ion-exchange Method**
K. Kimura, S. Sakida, Y. Benino, T. Nanba; Okayama University, Japan

S8-P036 **Glasses Doped with Pr^{3+}/Yb^{3+} Rare-earth Ions for the Enhanced Absorption Efficiency of Silicon Solar Cells**
S. K. Kim, J. Heo; Pohang University of Science and Technology, Korea

S8-P037 **A Study on the Relationship between Nonlinear Optical Constants and the Ionic Conductivity in Glasses**
S. Ikeda, M. Aniya; Kumamoto University, Japan

S8-P038 **Formation Characteristics and Hole-Burning Properties of Europium-doped Heteroanion Glasses**
H. Liang, H. Hanzawa, T. Horikawa, M. Itoh, K. Machida; Osaka University, Japan

Symposium 8

S8-P039 **Fabrication of Lithium Niobate Patterns on Li_2O-Nb_2O_5-SiO_2 Glassy Surface by Laser Irradiation**
T. Honma, T. Komatsu; Magaoka University of Technology, Japan

S8-P040 **Laser-Induced Structure Change of CuO-Doped Silicate Glass in Reducing Atmosphere**
T. Karasawa, T. Honma, T. Komatsu; Nagaoka University of Technology, Japan

S8-P041 **Formation of Elemental Distribution in Glasses by Femtosecond Laser Irradiation**
N. Yasuda, M. Shimizu, M. Sakakura, Y. Shimotsuma, K. Miura, K. Hirao[1]; Kyoto University, Japan

S8-P042 **One-coat Glass Enamels for Pipes**
I. Berdzenishvili; Georgian Technical University, Georgia

S8-P043 **Electric Properties of Al_2O_3 Films on Stainless Steel Prepared by EB-PVD**
J. Yang, Z. Yang, C. Mao, J. Du; General Research Institute for Nonferrous Metals, China

S8-P044 **Phase Separation Behavior and Coloring of Coating Glasses for Sanitary Ware**
Y. Tomioka, S. Sukenaga, N. Saito, K. Nakashima; Kyushu University, Japan

S8-P045 **Metal Oxide Thin Film Prepared by DC Magnetron Sputtering Suitable for Electrochromic Switchable Mirror Glass**
K. Tajima, Y. Yamada, K. Yoshimura; National Institute of Advanced Industrial Science and Technology, Japan

S8-P046 **Preparation and Characterization of Silica Thin Films by Liquid Phase Deposition**
S.-H. Im[1], Y.-H. Na[1], N.-J. Kim[1], D.-H. Kim[1], T.-H. Kim[2], J.-E. Song[2], D.-K. Yoon[2], B.-K. Ryu[1]; [1]Pusan National University, Korea, [2]Jeong Kwan Co.,Ltd, Korea

S8-P047 **Preparation and Characterization of Silicate Phosphor Powders Containing Eu^{3+} by Mechanochemical Process**
A. Shinomiya, K. Tadanaga, M. Tatsumisago; Osaka Prefecture University, Japan

S8-P048 **Properties of CoO Doped in Glasses Prepare from Rice Hush Fly Ash in Thailand**
J. Kaewkhao[1], C. Kedkaew[2], P. Limsuwan[2]; [1]Nakhon Pathom Rajabhat University, Thailand, [2]King Mongkut's University of Technology Thonburi, Thailand

Symposium 9A: Ceramics for Electricity; Energy Conversion and Storage Systems for Green World

Main Organizers
- Kiyoshi Kanamura, Tokyo Metropolitan University, Japan
- Koichi Kajihara, Tokyo Metropolitan University, Japan

Co-Organizers
- Dominique Guyomard, CNRS - Université de Nantes, France
- Tatsumi Ishihara, Kyushu University, Japan
- Ryoji Kanno, Tokyo Institute of Technology, Japan
- Tsutomu Miyasaka, Yokohama Toin Univeristy, Japan
- Ramaswamy Murugan, Pondicherry Central University, India
- Shigeto Okada, Kyushu University, Japan
- Yang Shao-Horn, Massachusetts Institute of Technology, USA
- Yasuo Takeda, Mie University, Japan
- Masahiro Tatsumisago, Osaka Prefecture University, Japan

This symposium is supported by:
- Taiheiyo Cement Corporation
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- Denki Kagaku Kogyo K.K.
- Tokyo Ohka Kogyo Co.,Ltd.

Oral Session

Monday, November 15

Room: 1009

14:15 - 16:15: Joint Symposium 9A&9B Ceramics for Energy Conversion

Chair: Akitoshi Hayashi (Osaka Prefecture University, Japan)

14:15 - 14:45
S9A-001 **Recent Developemant of Materials and Unique Strctures for High Energy Density Batteries for Future Society (President Designated)**
K. Kanamura; Tokyo Metropolitan University, Japan

14:45 - 15:15
S9A-002 **Development of Chemically Stable Garnet Structured Electrolytes for All Solid State Lithium Ion Batteries (Invited)**
R. Murugan; Puducherry Central University, India

15:15 - 15:45
S9A-003 **The Current Status of Cathode Materials for LIB: Mobile and Electric Vehicle Applications (Invited)**
J.-S. Kim; Korea Electronics Technology Institute, Korea

15:45 - 16:15
S9A-004 **Electron Energy-Loss Spectroscopy for Nano Characterization of Battery Materials and Electrodes (Invited)**
P. Moreau, B. Lestriez, J. Gaubicher, A.-C. Gaillot, N. Dupré, D. Guyomard; CNRS - Université de Nantes, France

*** Presentation of 9B (16:15-18:00) is on page 123**

Symposium 9A

Tuesday, November 16

Room: 1009

9:00 - 10:30: Electrolytes and All-Solid-State Batteries

Chair: Ramaswamy Murugan (Pondicherry Central University, India)

9:00 - 9:15
S9A-005 **Effect of the Neutral and Charged Oxygen Vacancies in TiO_2 on the Mobility of Li^+ Ions**
P. V. Sushko[1,2], K. M. Rosso[2]; [1]University College London, UK, [2]Pacific Northwest National Laboratory, USA

9:15 - 9:30
S9A-006 **Effect of Ca-doping on the Ionic Conductivity of $LiSi_2N_3$**
E. Narimatsu, Y. Yamamoto, T. Takeda, T. Nishimura, N. Hirosaki; National Institute for Materials Science, Japan

9:30 - 10:00
S9A-007 **All-Solid-State Sodium-ion Symmetric Battery Based on NASICON-Related Compounds (Invited)**
S. Okada, Y. Noguchi, E. Kobayashi, L. S. Plashnitsa, J. Yamaki; Kyushu University, Japan

10:00 - 10:30
S9A-008 **All-Solid-State Rechargeable Lithium Batteries with Sulfide Glass-Ceramic Electrolytes (Invited)**
A. Hayashi, M. Tatsumisago; Osaka Prefecture University, Japan

10:30 - 10:45 **Break**

10:45 - 11:30: Electrolytes and All-Solid-State Batteries

Chair: Shigeto Okada (Kyushu University, Japan)

10:45 - 11:00
S9A-009 **All-Solid-State Rechargeable Lithium Batteries with Lithium Sulfide Electrode**
M. Nagao, A. Hayashi, M. Tatsumisago; Osaka Prefecture University, Japan

11:00 - 11:15
S9A-010 **All-Solid-State Li-ion Battery Fabricated by Aerosol Deposition Technique**
D. Popovici[1], H. Nagai[2], S. Fujishima[2], J. Akedo[1]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Toyota motor corporation, Japan

11:15 - 11:30
S9A-011 **All-Solid-State Thin Film Batteries – Processing and Properties**
J. Feng, J. Zhu, H. Xia, K. Zeng, M. O. Lai, L. Lu; National University of Singapore, Singapore

14:30 - 15:15: Cathodes and Anodes

Chair: Tatsumi Ishihara (Kyushu University, Japan)

14:30 - 14:45
S9A-012 **Single Particle Measurement at High Temperatures for Various Cathode Materials of Lithium Ion Battery**
B. Takemura, H. Munakata, K. Kanamura; Tokyo Metropolitan University, Japan

14:45 - 15:00
S9A-013 **High-throughput Screening Process of Candidate Cathode Materials for Lithium Ion Secondary Battery**
K. Fujimoto, H. Otake, S. Ito; Tokyo University of Science, Japan

15:00 - 15:15
S9A-014 **Synthesis and Characterization of Nanostructured $LiMnPO_4$/C Composites**
I. Taniguchi, D. T. N. Long, Z. Bakenov; Tokyo Institute of Technology, Japan

15:15 - 16:00: Cathodes and Anodes

Chair: Philippe Moreau (CNRS - Université de Nantes, France)

15:15 - 15:30
S9A-015 **Physical and Electrochemical Properties of Li_2FeSiO_4/C Nanocomposites Prepared by a Combination of Spray Pyrolysis with Wet Ballmilling**
B. Shao, T. Izumi; Tokyo Institute of Technology, Japan

15:30 - 15:45
S9A-016 **Fabrication of Orientated $LiCoO_2$ Using Slip Casting in a Strong Magnetic Field**
H. Yamada[1,2], T. S. Suzuki[2], T. Uchikoshi[2], M. Hozumi[3], S. Yokoishi[3], K. Kohama[3], Y. Sakka[2,1]; [1]University of Tsukuba, Japan, [2]National Institute for Materials Science, Japan, [3]TOYOTA Mortor Corporation, Japan

15:45 - 16:00
S9A-017 **Study and Optimization of Spinel Nickel Cobaltite Electrode for Hybrid Battery-Supercapacitor**
W. Wang[1], S. H. Chan[2]; [1]Agency for Science, Technology and Research (A*STAR), Singapore, [2]Nanyang Technological University, Singapre

16:00 - 16:15 **Break**

16:15 - 17:30: Cathodes and Anodes

Chair: Jeom-Soo Kim (Korea Electronics Technology Institute, Korea)

16:15 - 16:45
S9A-018 **Intercalation of PF_6^- Anion into Graphitic Carbon for New Type Rechargeable Battery, Dual Carbon Battery (Invited)**
T. Ishihara, R. Tokunaga, Y. Yokoyama; Kyushu University, Japan

16:45 - 17:00
S9A-019 **Water-Stable Lithium Electrode Based on NASICON-Type Lithium Conducting Glass Ceramics**
T. Zhang, N. Imanishi, A. Hirano, Y. Takeda, O. Yamamoto; Mie University, Japan

17:00 - 17:15
S9A-020 **MnO Anodes for Li-ion Batteries**
K. Zhong, R. Wang, X. Yu, H. Li, X. Huang, L. Chen; Chinese Academy of Sciences, China

17:15 - 17:30
S9A-021 **Nanostructuring Electrode Materials for High Power Lithium-Ion Batteries**
Y.-S. Hu[1], L. Zhao[1], H. Li[1], X. Huang[1], L. Chen[1], J. Maier[2]; [1]Chinese Academy of Sciences, China, [2]Max Planck Institute for Solid State Research, Germany

Wednesday, November 17

Room: 1009

9:15 - 10:30: Solar Cells

Chair: Kiyoshi Kanamura (Tokyo Metropolitan Univerity, Japan)

9:15 - 9:45
S9A-022 **Dye-sensitized Solar Cells Consisting of Nanoporous Titania Sheets -Tanden, Haybrid, Rod and Fiber Solar Cells- (Invited)**
S. Hayase; Kyushu Institute of Technology, Japan

9:45 - 10:00
S9A-023 **Anatase Nanocrystals with Specific Crystal Plane on Surface for High Performance Dye-Sensitized Solar Cell**
Q. Feng, P. Wen, Y. Ishikawa, H. Itoh; Kagawa University, Japan

Symposium 9A

10:00 - 10:15
S9A-024 **Fabrication of TiO_2 Blocking Layer for Solid State Dye Sensitized Solar Cells**
H. Sakamoto, S. Igarashi, K. Niume, M. Nagai; Tokyo City University, Japan

10:15 - 10:30
S9A-025 **Structural Design and Fabrication of ZnO Photoelectrodes for Dye-Sensitized Solar Cells with Higher Performance**
S. Ueno, S. Fujihara; Keio University, Japan

10:30 - 10:45 **Break**

10:45 - 11:45: Electrolytes, Electrode Catalysts, and Related Devices

Chair: Hirokazu Munakata (Tokyo Metropolitan Univerity, Japan)

10:45 - 11:00
S9A-026 **Intermediate Temperature Fuel Cell Using Gypsum Based Electrolyte and Electrodes**
S. Suzuki[1], Y. Katagiri[2], M. Nagai[1]; [1]Tokyo City University, Japan, [2]Nippon Sheet Glass, Japan

11:00 - 11:15
S9A-027 **Effective Storage of Electrical Charge in Hydroxyapatite Ceramics Using Ionic Conductive Property**
Y. Tanaka[1,2], M. Nakamura[1], J. Hojo[2], A. Nagai[1], K. Yamashita[1]; [1]Tokyo Medical and Dental University, Japan, [2]Kyushu University, Japan

11:15 - 11:30
S9A-028 **Novel Anhydrous Proton-Conducting Materials for Intermediate-Temperature PEM Fuel Cells**
H. Kato, A. Obata, T. Kasuga; Nagoya Institute of Technology, Japan

11:30 - 11:45
S9A-029 **Catalytic Reforming of Methane to Syngas in an Oxygen-Permeative Membrane Reactor**
T. Urano, K. Kubo, T. Saito, A. Hitomi; TDK Corporation, Japan

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 - 14:00

S9A-P001 **Comparison of Various Bulk Properties of Olivine-type $LiMPO_4$ (M=Mn, Fe, Co, Ni) Materials for Cathodes of Li Ion Battery: A First-principles Study**
M. Nakayama[1,2], M. Nogami[1]; [1]Nagoya Institute of Technology, Japan, [2]Tokyo Institute of Techonology, Japan

S9A-P002 **Effects of Atmosphere and Particle Size on the Crystallization of $LiFePO_4$ in Lithium Iron Phosphate Glasses**
K. Nagamine[1,2], S. Reinsch[3], R. Mueller[3], T. Honma[1], T. Komatsu[1]; [1]Nagaoka University of Technology, Japan, [2]Japan Society for the Promotion of Science, Japan, [3]BAM Federal Institute for Materials Research and Testing, Germany

S9A-P003 **Hydrothermal Synthesis of Lithium Iron Phosphate Mesocrystals from a Precursor Phase and Electrochemical Properties**
Y. Matsuzawa[1], Y. Oaki[1], H. Uchiyama[1], E. Hosono[2], H. Zhou[2], H. Imai[1]; [1]Keio University, Japan, [2]Advanced Industrial Science and Technology, Japan

S9A-P004 **Characterization of Carbon Composite $LiMn_{1-x}Fe_xPO_4$ Cathodes**
Y. Mishima[1,3], S. Honda[1], H. Sadamura[1], N. Nakayama[2], C. Moriyoshi[3], Y. Kuroiwa[3]; [1]Todakogyo Corporation, Japan, [2]Yamaguchi University, Japan, [3]Hiroshima University, Japan

S9A-P005 Crystal and Electronic Structure Changes of Li_2CuO_2 Cathode Materials for Lithium-ion Batteries
T. Setsu[1], Y. Arachi[1], Y. Nakata[2]; [1]Kansai University, Japan, [2]Iwaki Meisei University, Japan

S9A-P006 Preparation and Electrochemical Properties of $MgCu_2O_3$
F. Kobayashi, S. Maruyama, Y. Miyazaki, T. Kajitani; Tohoku University, Japan

S9A-P007 Preparation and Electrode Property of Layered-type $LiNi_{0.4}Co_{0.6-x}Ti_xO_2$
K. Ikezawa, S. Ito, K. Fujimoto; Tokyo University of Science, Japan

S9A-P008 Magnetic Studies on Layered Solid Solution $Li_x(Ni_{0.4}Mn_{0.6})_{2-x}O_2$
K. Nakao[1], T. Nakamura[1], Y. Yamada[1], N. Koshiba[2]; [1]University of Hyogo, Japan, [2]Tanaka Chemical Corporation, Japan.

S9A-P009 Synthesis and Electrochemical Properties of Li-Mn-Ni Oxide Cathode Materials for Li-ion Secondary Battery
M. Nii[1], W. Tang[2], Y. Ishikawa[1], Q. Feng[1]; [1]Kagawa University, Japan, [2]Research Institute for Solvothermal Technology, Japan

S9A-P010 Low-Temperature Flux Growth of $LiCoO_2$ and $LiMn_2O_4$ Crystals for Rechargeable Lithium Ion Batteries
H. Inagaki[1], K. Teshima[1], S. H. Lee[1], M. Hozumi[2], K. Kohama[2], S. Oishi[1]; [1]Shinshu University, Japan, [2]Toyota Motor Corporation, Japan

S9A-P011 Thin Film Electrode Materials $Li_4Ti_5O_{12}$ and $LiCoO_2$ Prepared by Spray Pyrolysis Method
M. Takahashi[1], J. Tani[1], H. Kido[1], A. Hayashi[2], K. Tadanaga[2], M. Tatsumisago[2]; [1]Osaka Municipal Technical Research Institute, Japan, [2]Osaka Prefecture University, Japan

S9A-P012 Fabrication of 3D Patterned Electrodes for Micro Lithium Ion Batteries
K. Yoshima, H. Munakata, K. Kanamura; Tokyo Metropolitan University, Japan

S9A-P013 Electrochemical Properties of Cathode Composite Prepared Using Carbon Wool Conducting Additive
S. Masuda[1], T. Nakamura[1], Y. Yamada[1], M. Tabuchi[2]; [1]University of Hyogo, Japan., [2]National Institute of Advanced Industrial Science and Technology, Japan.

S9A-P014 Properties and Mechanism of Layered Polysilane (Si_6H_6) Anode
Y. Kumai, S. Shirai, H. Okamoto, Y. Sugiyama, H. Nakano; Toyota Central R&D Labs., Inc , Japan

S9A-P015 Garnet-Type Lithium Ion Conducting Solid Electrolyte $Li_7La_3Zr_2O_{12}$
Y. Shimonishi, N. Imanishi, T. Zhang, A. Hirano, Y. Takeda, O. Yamamoto; Mie University, Japan

S9A-P016 Low-temperature Flux Growth of $Li_7La_3Zr_2O_{12}$ Crystals for Crystalline Lithium-ion Batteries
S. Tanaka[1], K. Teshima[1], S. H. Lee[1], M. Hozumi[2], K. Kohama[2], S. Oishi[1]; [1]Shinshu University, Japan, [2]Toyota Motor Corporation, Japan

S9A-P017 Fast Lithium Ion Conduction In Zirconium Containing Garnet Structured Ceramic Electrolyte
N. Janani, S. Ramakumar, R. Murugan; Pondicherry Engineering College, India

S9A-P018 Preparation and Characterization of Glass-ceramic Electrolytes in the System Li_2S-P_2S_5-Li_3PO_4
K. Noi[1], A. Hayashi[1], Y. Seino[2], T. Ohta[2], M. Tatsumisago[1]; [1]Osaka Prefecture University, Japan, [2]Idemitsu Kosan Co., Ltd., Japan

S9A-P019 Cyclic Durability of All Solid-state Lithium Polymer Batteries Using Poly(Ethylene Oxide) Based Solid Polymer Electrolytes
M. Nakayama[1,2], S. Wada[2], S. Kuroki[3], M. Nogami[1]; [1]Nagoya Institute of Technology, Japan, [2]Tokyo Institute of Techonology, Japan

S9A-P020 DFT Study on the Mechanism of Oxygene Reduction Reaction on Carbon Alloy Electrodes
T. Nakazono[1], N. Takeuchi[1], T. Yamabe[2], H. Kobayashi[1]; [1]KyotoInstitute of Technolog, Japan, [2]Nagasaki Institute of Applied Science, Japan

Symposium 9A

S9A-P021 A Comparative Study of Nanocomposite Ionic Gel Electrolytes for High Efficient Quasi-solid-state Dye-sensitized Solar Cells
P.-C. Liu, P.-Y. Hsu, H.-F. Lee, J.-J. Kai; National Tsing Hua University, Taiwan

S9A-P022 Application of Nanocomposite Gel Electrolyte in Flexible Dye-Sensitized Solar Cell
P.-Y. Hsu, H.-F. Lee, P.-C. Liu, J.-J. Kai; National Tsing Hua University, Taiwan

S9A-P023 Nitridation of Titanate Particles and its Electrochemical Performance in Nonaqueous Electrolyte EC/DEC
K. Tateki[1], T. Kinumoto[1], H. Kiyono[3], O. Tanaike[2], T. Tsumura[1], S. Shimada[3], M. Toyoda[1]; [1]Oita University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Hokkaido University, Japan

S9A-P024 TNO Transparent Conductive Films for Dye-sensitized Solar Cells
R. Muramoto[1], Y. Yamazaki[1], E. Sakai[2], N. Yamada[2], T. Hitosugi[2,3], T. Hasegawa[2,4], M. Okuya[1]; [1]Shizuoka Univ., Japan, [2]KAST, Japan, [3]Tohoku Univ., Japan, [4]Univ. of Tokyo, Japan

S9A-P025 Fabrication of $KTiNbO_5$ Crystal Photoactive Electrodes for the Dye-Sensitized Solar Cells
A. Yamaguchi, S. Suzuki, K. Teshima, S. H. Lee, S. Oishi; Shinshu University, Japan

S9A-P026 Effect of Nitrogen Doping Using Titanium Nitride on Photovoltaic Property of Ferroelectric PLZT (3/52/48) Ceramic
N. Cherdtham, S. Phungsripheng, T. Wasanapiarnpong; Chulalongkorn University, Thailand

S9A-P027 Preparation of Bulk Na_2O–BaO–PbO–Nb_2O_5–SiO_2 Glass-Ceramic Dielectrics for Energy Storage Sources
J. Luo, Q. Tang, Q. Zhang, J. Zhu, D. Han, L. Wang, J. Du; General Research Institute for Nonferrous Metals, China

Symposium 9B: Ceramics for Electricity; SOFC and Related Technologies

Main Organizers
- Yoshinobu Fujishiro, AIST, Japan
- Nigel Sammes, Colorado School of Mines, USA
- Masashi Mori, CRIEPI, Japan

Co-Organizers
- Masanobu Awano, AIST, Japan
- Fatith Dogan, Missouri University of Science and Technology, USA
- Manabu Ihara, Tokyo Institute of Technology, Japan
- Yasunobu Mizutani, TOHO GAS Co., Ltd., Japan
- Prabhakar Singh, Connecticut Global Fuel Cell Center UTC, USA
- Toshio Suzuki, AIST, Japan
- Yasuo Takeda, University of Mie, Japan
- Hiroyuki Uchida, University of Yamanashi, Japan

Oral Session

Monday, November 15

Room: 1009

16:15 - 18:00: Joint Symposium 9A&9B Ceramics for SOFC and the Related Technology

Chairs: Nigel Sammes (Colorado School of Mines, USA) and
Yoshinobu Fujishiro (National Institute of Advanced Industrial Science and Technology, Japan)

16:15 - 16:45
S9B-001 **Performance Analysis and Development Strategies for Solid Oxide Fuel Cells (Invited)**
E. Ivers-Tiffée; Universität Karlsruhe and Karlsruhe Institut für Technologie, Germany

16:45 - 17:15
S9B-002 **Microstructural Change and Performance of Electrodes during Opearation of Solid Oxide Fuel Cells (Invited)**
K. Eguchi; Kyoto University, Japan

17:15 - 17:45
S9B-003 **Polarization Properties of Oxygen and Hydrogen Electrodes for Reversible Solid Oxide Fuel Cells (Invited)**
H. Uchida, H. Nishino, K. Kakinuma, M. Watanabe; University of Yamanashi, Japan

17:45 - 18:00
S9B-004 **Physical and Electrochemical Performances of SOFC Anode under Various Fuels (Invited)**
T. Yamaguchi[1,2], K. Galloway[1], T. Suzuki[2], Y. W. Sin[1], N. Sammes[1]; [1]Colorado School of Mines, USA, [2]National Institute of Advanced Industrial Science and Technology, Japan

*** Presentation of 9A (14:15-16:15) is on page 117**.

Symposium 9B

Wednesday, November 17

Room: 1009

13:15 - 14:45: Cell and Stack Technology

Chairs: Kouichi Kikuta (Nagoya University, Japan) and
Toshio Suzuki (National Institute of Advanced Industrial Science and Technology, Japan)

13:15 - 13:45
S9B-005 **Value Applications for Fuel Cells (Invited)**
J. D. Carter[1], P. R. Devlin[2], N. L. Garland[2]; [1]Argonne National Laboratory, USA, [2]US Department of Energy, USA

S9B-006 Cancelled

13:45 - 14:00
S9B-007 **Performance Evaluation of Anode-supported Planar SOFC with Precisely-Simulated Reformate Gases**
Y. Tanaka, A. Momma, K. Takano, T. Kato; National Institute of Advanced Industrial Science and Technology, Japan

14:00 - 14:15
S9B-008 **Solid Oxide Technology for Power, Hydrogen Production, Reforming and Oxygen Separation**
A. Demin, A. Malakhov, H. Nabielek; SolidCell Inc., USA

14:15 - 14:30
S9B-009 **Development of Residential SOFC Cogeneration System**
T. Ono[1], I. Miyachi[1], M. Suzuki[2], K. Higaki[2]; [1]KYOCERA Corp., Japan, [2]OSAKA GAS Co.,Ltd., Japan

14:30 - 14:45
S9B-010 **Development of SOFC Stack and CHP System at NGK Spark Plug Co., Ltd.**
Y. Itoh, M. Shibata, D. Nishijima, T. Matsuno, I. Gonda, H. Ishikawa, K. Furusaki; NGK Spark Plug Co., Ltd, Japan

14:45 - 15:15 **Break**

15:15 - 17:15: Cell and Electrolyte Materials Technology

Chairs: Toshihiro Moriga (Tokushima University, Japan) and
Kouichi Hamamoto (National Institute of Advanced Industrial Science and Technology, Japan)

15:15 - 15:45
S9B-011 **Effect of Anode Composition and Microstructure on Fuel Flexible Utilization of Solid Oxide Fuel Cells (Invited)**
F. Dogan; Missouri University of Science and Technology, USA

15:45 - 16:00
S9B-012 **Metal Supported Solid Oxide Fuel Cells – Selected Aspects**
P. Jasinski, W. Lewandowska, S. Molin; Gdansk University of Technology, Poland

16:00 - 16:15
S9B-013 **Influence of Oxygen Surfaces Exchanges on Oxygen Semi-permeation Performances of $La_{1-x}Sr_xFe_{1-y}Ga_yO_{3-\delta}$ Dense Membranes**
A. Vivet[1,2], P.-M. Geffroy[1], N. Richet[2], T. Chartier[1]; [1]University of Limoges, France, [2]Air Liquide, France

16:15 - 16:30
S9B-014 **Anode Supported SOFC Using Plasma-sprayed Apatite-type Lanthanum Silicate Films as an Electrolyte**
H. Yoshioka[1], T. Mitsui[2], A. Mineshige[2], T. Yazawa[2]; [1]Hyogo prefectural institute of technology, Japan, [2]University of Hyogo, Japan

16:30 - 16:45
S9B-015 **Ceramics-based PEM Fuel Cell Activities in WHUT**
M. Pan; Wuhan University of Technology, China

16:45 - 17:00
S9B-016 **Relationship between Oxide-ion Conductivity and Ordering of Oxygen Vacancy in the $Ln_2Zr_2O_7$ (Ln = La, Nd, Eu) System Having a Pyrochlore Composition**
T. Hagiwara, H. Yamamura, H. Nishino; Kanagawa University, Japan

17:00 - 17:15
S9B-017 **Processing, Microstructures and Electrical Properties of Zirconia- and Ceria-based Thin Films**
B. Scherrer, A. Bieberle-Hütter, J. L. M. Rupp, L. J. Gauckler; ETH Zurich, Switzerland

Thursday, November 18

Room: 1009

9:00 - 11:45: Electrode Materials and Processing Technology

Chairs: Masashi Mori (Central Research Institute of Electric Power Industry (CRIEPI), Japan) and Yoshinobu Fujishiro (National Institute of Advanced Industrial Science and Technology(AIST), Japan)

9:00 - 9:15
S9B-018 **Oxygen Permeability and Phase Stability of Surface-Modified $Sr(Ti, Fe)O_{3-\delta}$**
S. Sasaki, H. Takamura; Tohoku University, Japan

9:15 - 9:30
S9B-019 **Oxygen Permeability and Electrical Properties of Layered Perovskite $Sr_{3-x}La_xFeCoO_{7-\delta}$ Ceramics**
I. Kagomiya, M. Suzumra, K. Kakimoto, H. Ohsato; Nagoya Institute of Technology, Japan

9:30 - 9:45
S9B-020 **Hierarchical Nanostructured CeO_2 Based Materials as Catalysts for SOFC**
C. Xian[1], S. Shi[2], H. Li[1], L. Chen[1]; [1]Chinese Academy of Sciences, China, [2]Zhejiang Sci Tech Univ, China

9:45 - 10:00
S9B-021 **Development of Bi-metal Anode Microtubular Supports for Solid-Oxide Fuel Cells**
T. Suzuki, T. Yamaguchi, K. Hamamoto, Y. Fujishiro; National Institute of Advanced Industrial Science and Technology, Japan

10:00 - 10:15
S9B-022 **Improvement of LSM Performance under Co-sintering at High Temperature Via CeO_2 Addition**
J. P. Wiff[1], K. Jono[1], M. Suzuki[1], S. Suda[1], F. Hashimoto[2]; [1]Japan Fine Ceramics Center, Japan, [2]FCO Corp.,Japan

10:15 - 10:30
S9B-023 **Preparation and Electrical Properties of Heavily Donor-Doped $SrTiO_3$**
H. Machida, H. Takamura; Tohoku Unioversity, Japan

10:30 - 10:45 **Break**

10:45 - 11:00
S9B-024 **Cation Deficiency and Structural and Electrical Properties of the Perovskites $(Sr_{1-x}La_x)_{1-y}TiO_3$ and $(Sr_{1-x}La_x)Ti_{1-z}TiO_3$**
S. Yabui[1], Y. Higashi[1], K. Murai[1], Z. Wang[2], M. Mori[2], T. Moriga[1]; [1]The University of Tokushima, Japan, [2]Central Research Institute of Electrical Power Industry, Japan

11:00 - 11:15
S9B-025 **Preparation and Characterization of Anode-Supported YSZ Thin-Film Electrolyte by Co-tape Casting and Co-sintering Process**
Q. L. Liu[1], C. J. Fu, S. H. Chan, G. Pasciak[2]; [1]Nanyang Technological University, Singapore, [2]Electrotechnical Institute, Poland

Symposium 9B

11:15 - 11:30

S9B-026 **Liquid-Phase Oxidation Joining of Yttria-Stabilized Zirconia and Fe-Cr Alloy via Al Interlayer as a Gas Sealing Technique for Planar SOFCs**
T. Akashi[1,2], T. Shimura[2]; [1]Hosei University, Japan, [2]Hokkaido University, Japan

11:30 - 11:45

S9B-027 **Synthesis of $La_{0.8}Sr_{0.2}Co_{0.8}Fe_{0.2}O_3$ Nanopowders and their Application in Solid Oxide Fuel Cells**
C. Ding, H. Lin, K. Sato, T. Hashida; Tohoku University, Japan

Poster Session

Monday, November 15

Room: Event Hall

12:00 - 14:00

S9B-P001 **Application of the Nano-composite Material on the Anode Support for Increasing the Performance for Intermediate Temperature SOFCs**
S. H. Min, J. K. Rhee, Y. K. Jeon, S. Park, Y. Shul; Yonsei University, Korea

S9B-P002 **Electrochemical Property of Tubular Type of Solid Oxide Electrolysis Cell for NOx Decomposition**
K. Hamamoto, T. Suzuki, Y. Fujishiro, M. Awano; National Institute of Advanced Industrial Science and Technology, Japan

S9B-P003 **Steam Electrolytic Characteristics under Various H_2 or O_2 Concentration in Supplying Gases**
Z. Wang, M. Mori; Central Research Institute of Electric Power Industry, Japan

S9B-P004 **Synthesis and Electrical Conductivity of $La_{1-x}Sr_xAl_{0.9}Mg_{0.1}O_{3-\delta}$ (x = 0.1-0.4) Perovskite Solid Solution**
A. Shinomiya, Y. Hirata, S. Sameshima, N. Matsunaga; Kagoshima University, Japan

S9B-P005 **$LaSrAlFeO_{3-\delta}$ Oxygen Ion Conducting Membranes Sintered under Various Gas Atmosphere**
Y. Takahashi[1,2], M. Kasahara[2], W. Shin[1,3]; [1]Nagoya Institute of Technology, Japan, [2]Noritake Co., Limited, Japan, [3]National Institute of Advanced Industrial Science and Technology, Japan

S9B-P006 **Oxide-ion Conduction and Dielectric Relaxation in the Fluorite-type $Zr_{0.8}Ln_{0.2}O_{1.9}$ (Ln = Nd, Sm, Eu, Gd, Dy, Ho, Er, Tm, Yb, Lu) System**
J. Kawamoto, Y. Yagi, M. Saito, H. Yamamura; Kanagawa University, Japan

S9B-P007 **Synthesis of New Brownmillerite-type Systems $A_2(M^{2+}, M^{4+\prime})_2O_5$ (A = Ba, Sr, Ca; M^{2+} = Zn, Mg, Cd, Be; $M^{4+\prime}$= Zr, Ce, Ti, Hf, Sn)**
S. Ito, M. Saito, H. Yamamura; Kanagawa University, Japan

S9B-P008 **Proton Conduciton in New Brownmillerite $Ba_2(Zn, B')_2O_5$ systems (B'=Nb, Ta, W)**
M. Saito, S. Ito, M. Watanabe, H. Yamamura; Kanagawa University, Japan

S9B-P009 **Preparation and Characterization of $La_{9.33}Si_6O_{26}$-$Ce_{0.8}Sm_{0.2}O_{1.9}$ Composite Oxygen-ion Conductors**
H. Zhang, Y. Liu, C. Liu, Z. Zhang, Z. Li; Central South University, China

S9B-P010 **Fabrication and Characterization of the LSGM Thin Film Electrolyte for SOFC by RF Magnetron Sputtering**
K. Sasaki, H. Fujii, Y. Endo, A. Suzuki, T. Terai; The University of Tokyo, Japan

S9B-P011 **Effect of Dy on the Microstructure and Electrical Properties of $Ce_{0.8}Gd_{0.2-x}Dy_xO_2$ ($0 \le x \le 0.05$) Electrolytes for IT-SOFC**
Y. G. Choi, H. K. Hwang, K. Park; Sejong University, Korea

S9B-P012 **Internal Friction, Oxygen Relaxation and Microstructure of CeO_2-ZrO_2-Y_2O_3 Solid Solution**
M. Ozawa, K. Imura, N. Amimoto; Nagoya Institute of Technology, Japan

S9B-P013 Fabrication of $Ba(Ce, Zr)_{0.9}Y_{0.1}O_{3-\alpha}$ Thin Film on Dense Pd Substrate by UV-MOD
K. Asano[1], Y. Kozawa[2], Y. Mugikura[1,2], T. Watanabe[1,2]; [1]Central Research Institute of Electric Power Industry, Japan, [2]Yokohama National Univ., Japan

S9B-P014 Improvement of SOFC Cathode by Coating of Cobalt-rich Oxide Layer
N. Kitano, A. Hirano, N. Imanishi, Y. Takeda; Mie University, Japan

S9B-P015 Characterization of Perovskite-type Anode Materials, $Sr_{2-x}La_xFeMoO_{6-\delta}$ (x = 0-0.5)for SOFCs
H. Kawanishi, A. Hirano, N. Imanishi, Y. Takeda; Mie University, Japan

S9B-P016 A-site and B-site Nonstoichiometries and Sintering Characteristics of $(Sr_{1-x}La_x)_{1-y}Ti_{1-z}O_3$ Perovskies
M. Mori[1], Z. Wang[1], T. Itoh[2], S. Yabui[3], K. Murai[3], T. Moriga[3]; [1]Central Research Institute of Electric Power Industry, Japan, [2]AGC Seimi Chem. Co. Ltd., Japan, [3]Tokushima University, Japan

S9B-P017 Fabrication and Properties of $LaNi_{0.6}Fe_{0.4}O_3$-Ni Composite for Solid Oxide Fuel Cell Interconnect
T. Nomura, S. Nishimoto, Y. Kameshima, M. Miyake; Okayama University, Japan

S9B-P018 $LaSrTiFeO_{3-\delta}$ Paste for Screen Printing Process of SOFC
Y. Takahashi[1,2], M. Kasahara[2], B. N. Nair[2], W. Shin[1,3], S. Murakami[3], K. Ri[3], T. Itoh[3], I. Matsubara[3]; [1]Nagoya Institute of Technology, Japan, [2]Noritake Co.,Limited, Japan, [3]National Institute of Advanced Industrial Science and Technology, Japan

S9B-P019 3DOM Anode Design for Improvement of SOFC Performance Based on Structural Observations
Y. Katsuki, H. Munakata, K. Kanamura; Tokyo Metropolitan University, Japan

S9B-P020 Co-firing and Characterization of Microtubular NiO-GDC/GDC/LSM-GDC SOFC
Y. Takeuchi, T. Usui, K. Kikuta; Nagoya University, Japan

S9B-P021 Application of Dispenser Printing to Prepare Cathode Layer for SOFC
S. Ayabe, N. Yashiro, K. Kikuta; Nagoya University, Japan

S9B-P022 A Theoretical Model for the Relationship between Thermal Expansion and Ionic Conduction
S. Taniguchi, M. Aniya; Kumamoto University, Japan

S9B-P023 Microstructure-Based Solid Oxide Fuel Cell Seal Design Using Statistical Continuum Mechanics
J. Milhans[1], D. Li[2], X. Sun[2], M. Khaleel[2], H. Garmestani[1]; [1]Georgia Institute of Technology, USA, [2]Pacific Northwest National Laboratory, USA

S9B-P024 Oxide-ion Conduction and Dielectric Relaxations for Fluorite Type Structure
Y. Yagi, J. Kawamoto, M. Saito, H. Yamamura; Kanagawa University, Japan

Symposium 9C

Symposium 9C: Ceramics for Electricity; Direct Conversion Technology between Heat and Electricity

Main Organizers
- Ryoji Funahashi, AIST, Japan
- Kunihito Koumoto, Nagoya University, Japan

Co-Organizers
- Shinsuke Yamanaka, Osaka University, Japan
- Terry Tritt, Clemson University, USA
- George Nolas, University of South Florida, USA
- Lidong Chen, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China
- Won Seon Seo, Korea Institute of Ceramic Engineering & Technology, Korea
- Harald Bottner, Fraunhofer Institute for Physical Measurement Techniques, Germany
- Antoine Maignan, Laboratoire CRISMAT/ENSICAEN, France

Oral Session

Wednesday, November 17

Room: 1008

9:00 - 10:30: Oxide I

Chair: Ichiro Terasaki (Nagoya University, Japan)

9:00 - 9:15
S9C-001 **Microstructure Control of Nano Phase-Separated Co-Mn-O System and its Effects on Thermoelectric Properties**
A. Kosuga[1,2], K. Yubuta[3], Y. Wang[4], K. Kurosaki[5], S. Yamanaka[5], K. Koumoto[4,6], R. Funahashi[2,6]; [1]Osaka Prefecture University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Tohoku University, Japan, [4]Nagoya Universitym, Japan, [5]Osaka University, Japan, [6]Japan Science and Technology Agency, Japan

9:15 - 9:30
S9C-002 **Thermoelectric Properties of Perovskite-type Oxide System $Ca_{1-x}Nd_{2x/3}V_{x/3}MnO_3$ Having A-site Vacancy**
H. Kawakami, M. Anzai, M. Saito, H. Yamamura; Kanagawa University, Japan

9:30 - 9:45
S9C-003 **Thermoelectric Properties and Figure of Merit of La-Doped (Ba,Sr)SnO_3 Solid Solutions**
M. Yasukawa[1], T. Kono[2], K. Ueda[3], H. Yanagi[4], S. W. Kim[5], H. Hosono[5]; [1]Kochi National College of Technology, Japan, [2]Kochi Prefectural Industrial Technology Center, Japan, [3]Kyushu Institute of Technology, Japan, [4]University of Yamanashi, Japan, [5]Tokyo Institute of Technology, Japan

9:45 - 10:00
S9C-004 **Thermal and Electrical Properties of Metal Oxides with Rattling Cations in Cage-like Structure**
M. Ohtaki, S. Miyaishi; Kyushu University, Japan

10:00 - 10:30
S9C-005 **Structures and Thermoelectric Properties of Indium Based Oxide Compounds (Invited)**
E. Guilmeau, S. D. Bhame, T. Zhou, B. Raveau; Laboratorie CRISMAT, France

10:30 - 10:45 **Break**

10:45 - 12:15: Oxide II

Chair: Emmanuel Guilmeau (CRISMAT Laboratory, France)

10:45 - 11:15

S9C-006 **Thermoelectricity Enhanced by Spin-State Disorder in the Perovskite Oxide $La_{1-x}Sr_xCo_{1-y}Rh_yO_3$ (Invited)**

I. Terasaki[1], S. Shibasaki[2], S. Asai[1], N. Furuta[1], Y. Yasui[1]; [1]Nagoya University, Japan, [2]Waseda University, Japan

11:15 - 11:30

S9C-007 **Monolithic Micro ThermoElectric Generator Based on Multi Layer Ceramic Capacitor Technology**

S. Funahashi, S. F. Hayashi, T. Nakamura, K. Kageyama; Murata Manufacturing Co.,Ltd., Japan

11:30 - 11:45

S9C-008 **Role of Nb-doped Grain Boundaries in Nano-grained Thermoelectric Ceramics of La-doped $SrTiO_3$**

Y. Wang[1], C. Wan[1,2], N. Wang[1], Y. Ba[1], K. Koumoto[1,2]; [1]Nagoya University, Japan, [2]Japan Science and Technology Agency, Japan

11:45 - 12:00

S9C-009 **Local Magnetic Properties in the CoO_2 Layer in Layered Thermoelectric Cobalt Dioxides**

T. Takami[1], M. Itoh[1], H. Nozaki[2], H. Itahara[2], J. Sugiyama[2]; [1]Nagoya University, Japan, [2]Toyota Central Research and Development Labs. Inc., Japan

12:00 - 12:15

S9C-010 **Large Anisotropic Thermoelectricity in the Perovskite Related Layered Structure: $Sr_nNb_nO_{3n+2}$ (n=4, 5)**

A. Sakai, K. Takahashi, H. Adadchi, T. Kanno; Panasonic Corporation, Japan

13:30 - 15:00: Chalcogenide

Chair: Clotilde Boulanger (Universite Paul Verlaine Metz LEM IJL, France)

13:30 - 13:45

S9C-011 **Low-Thermal-Conductivity $(MS)_{1+x}(TiS_2)_2$ (M = Pb, Bi, Sn) Misfit Layer Compounds for Bulk Thermoelectric Materials**

C. Wan[1,2], Y. Wang[1,2], N. Wang[1], K. Koumoto[1,2]; [1]Nagoya University, Japan, [2]Japan Sciece and Technology Agency, Japan

13:45-14:00

S9C-012 **Effect of Transition Metal Filling on Thermoelectric Properties of Chevrel Phase Sulfides**

M. Ohta, A. Yamamoto, H. Obara, M. Kunii, H. Nishiate, K. Ueno; National Institute of Advanced Industrial Science and Technology, Japan

14:00 - 14:15

S9C-013 **Effect of Vacancy Distribution on the Lattice Thermal Conductivity of Ga_2Se_3**

K. Kurosaki[1], C. Kim[1], M. Ishimarru[1], Y. Ohishi[1], H. Muta[1], S. Yamanaka[1,2]; [1]Osaka University, Japan, [2]University of Fukui, Japan

14:15 - 14:30

S9C-014 **Thermoelectric Properties of $GaSb$-Ga_2Te_3 and $InSb$-In_2Te_3 Alloys**

C. Kim[1], K. Kurosaki[1], Y. Usui[1], M. Ishimaru[1], H. Muta[1], S. Yamanaka[1,2]; [1]Osaka University, Japan, [2]University of Fukui, Japan

14:30 - 15:00

S9C-015 **Properties of Robust Thermoelectric Materials Prepared by Non-Equilibrium Synthesis Method for Energy Conversion (Invited)**

Q. Li; Brookhaven National Laboratory, USA

15:00 - 15:15 **Break**

Symposium 9C

15:15 - 17:15: Bismuth Telluride and Silicide

Chair: Qiang Li (Brookhaven National Laboratory, USA)

15:15 - 15:45

S9C-016 **Electrodeposition Ability for Tailoring Morphology and Thermoelectric Behavior of Bismuth Telluride Nanowires (Invited)**

C. Boulanger[1], C. Frantz[1], N. Stein[1], Y. Zhang[2], L. Gravier[3]; [1]Université de Metz 1bd Arago, France, [2]Université de Metz Ile du Saulcy, France, [3]HEIG-Vd, Suisse

15:45 - 16:00

S9C-017 **Electrodeposition of of Bi_2Te_3 Based Thermoelectric Micro-pillar Arrays**

J.-F. Li, D.-W. Liu; Tsinghua University, China

16:00 - 16:15

S9C-018 **Preparation of β-$FeSi_2$ and $MnSi_{1.7+\delta}$ Bulks from Metal Compact Bodies Using a Na-Si Melt and Their Thermoelectric Properties**

T. Yamada, E. Kariya, H. Morito, Y. Miyazaki, J. Takahashi, H. Yamane; Tohoku University, Japan

16:15 - 16:30

S9C-019 **Valence Electron Control in Higher Manganese Silicide $MnSi_y$**

Y. Miyazaki, Y. Saito, Y. Kikuchi, K. Hayashi, K. Yubuta, T. Kajitani; Tohoku University, Japan

16:30 - 16:45

S9C-020 **Structural Investigation and Thermoelectric Power of Fe-Si Compound**

A. Sakulkalavek, S. Kiatgamolchai; Chulalongkorn University, Thailand

16:45 - 17:15

S9C-021 **Advanced Thermoelectric Materials and Components for Radioisotope Thermoelectric Generators for Space Power Applications (Invited)**

T. Caillat; California Institute of Technology, USA

Thursday, November 18

Room: 1008

9:00 - 10:45: Skutterudite and Heusler

Chair: Toshihiro Takabatake (Hiroshima University, Japan)

9:00 - 9:15

S9C-022 **Thermoelectric Properties of $Tl_x(Co_{1-y}Rh_y)_4Sb_{12}$**

A. Harnwunggmoung[1,2], K. Kurosaki[1], H. Muta[1], S. Yamanaka[1,3]; [1]Osaka University, Japan, [2]Rajamangala University of Technology Suvarnabhumi, Thailand, [3]University of Fukui, Japan

9:15 - 9:30

S9C-023 **High Performance $In_xCe_yCo_4Sb_{12}$ Thermoelectric Materials with *In-Situ* Nanostructured InSb Phase**

H. Li[1], X. Tang[1], Q. Zhang[1], C. Uher[1,2]; [1]Wuhan University of Technology, China, [2]University of Michigan, USA

9:30 - 10:00

S9C-024 **What Do We Learn from Study on Multiple-filled Skutterudites? (Invited)**

W. Zhang[1], L. Chen[1], J. Yang[2], X. Shi[1], L. Xi[1], X. Shi[1]; [1]Chinese Academy of Sciences, China, [2]General Motors R&D, USA

10:00 - 10:30

S9C-025 **Development of Thermoelectric Materials Based on Fe_2VAl Heusler Compound for Energy Harvesting Applications (Invited)**

Y. Nishino; Nagoya Institute of Technology, Japan

10:30 - 10:45

S9C-026 **Origin of Large Thermoelectric Power in Off-stoichiometeric Fe_2VAl-based Alloys**

K. Soda[1], S. Harada[1], M. Kato[1], S. Yagi[1], Y. Sandaiji[2], Y. Nishino[2]; [1]Nagoya University, Japan, [2]Nagoya Institute of Technology, Japan

10:45 - 12:00: Clathrate and Others

Chair: Wenqing Zhang (Shanghai Institute of Ceramics, China)

10:45 - 11:15

S9C-027 **Tellurium-free Thermoelectric Module Based on a Clathrate Compound $Ba_8Ga_{16}Sn_{30}$ with p- and n-type Carriers (Invited)**

T. Takabatake[1], Y. Saiga[1], S. Deng[1], K. Suekuni[1], A. Yamamoto[2], K. Kishimoto[3], K. Nagase[2], H. Obara[2], K. Ueno[2], T. Koyanagi[3], K. Akai[1], Y. Kono[4], T. Taguchi[4], N. Ohya[4], K. Fukuda[5]; [1]Hiroshima University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Yamaguchi University, Japan, [4]DENSO Corp., Japan, [5]KELK Ltd., Japan

11:15 - 11:30

S9C-028 **Influence of Defect on the Thermoelectric Properties of YbB_6**

K. Kayamura[1], K. Inayoshi[1], H. Kitagawa[2], M. Takeda[1]; [1]Nagaoka University of Technology, Japan, [2]Shimane University, Japan

11:30 - 11:45

S9C-029 **Rapid Solidification Methods for Fabrication of Novel Thermoelectric Materials**

X. Tang[1], H. Li[1], W. Xie[1,3], Y. Yan[1], Q. Zhang[1], C. Uher[2], T. M. Tritt[3]; [1]Wuhan University of Technology, China, [2]University of Michigan, USA, [3]Clemson University, USA

11:45 - 12:00

S9C-030 **Thermoelectric Properties of Conducting Polyaniline/$BaTiO_3$ Nanoparticle Composite Films**

H. Anno[1], K. Yamaguchi[1], T. Nakabayashi[1], H. Kurokawa[2], F. Akagi[1], M. Hojo[1], N. Toshima[1]; [1]Tokyo University of Science, Yamaguchi, Japan, [2]Toda Kogyo Corp., Japan

13:15 - 14:30: Application I

Chair: Anke Weidenkaff (Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland)

13:15 - 13:45

S9C-031 **Progress in TE Materials and Devices and Solar PV-TE Hybrid Power Generation System in China (Invited)**

Q.-J. Zhang; Wuhan University of Technology, China

13:45 - 14:00

S9C-032 **Application of High-Thermoelectric-Power Materials to Self-Cooling Device**

H. Nakatsugawa[1], Y. Okamoto[2], S. Yamaguchi[3], T. Kawahara[3]; [1]Yokohama National University, Japan, [2]National Defence Academy, Japan, [3]Chubu University, Japan

14:00 - 14:30

S9C-033 **A High Packing Density Micro-thermoelectric Power Generator Fabricated by Electrochemical MEMS Technology (Invited)**

W. Wang[1], Y.-T. Jin[1], Y.-B. Zhu[1], M. Bian[1], X. Liao[1], H. Li[2], J.-P. Gao[3]; [1]School of Chemical Engineering and Technology, China, [2]School of Material science and engineering, China, [3]School of Science Tianjin University, China

14:30 - 14:45 **Break**

Symposium 9C

14:45 - 16:00: Application II

Chair: Hiroaki Anno (Tokyo University of Science, Yamaguchi, Japan)

14:45 - 15:00

S9C-034 **Thin Film Thermopile Array Generator Using Ceramic Catalytic Combustor**
W. Shin, T. Nakashima, M. Nishibori, N. Izu, T. Itoh, Y. Kinemuchi, Y. Fujishiro, I. Matsubara; National Institute of Advanced Industrial Science and Technology, Japan

15:00 - 15:30

S9C-035 **Development of Unconventional Thermoelectrics for Solar Energy Converters (Invited)**
A. Weidenkaff, M. Aguirre, N. Schäuble, P. Tomes, L. Karvonen, M. Trottmann; Empa, Switzerland

15:30 - 16:00

S9C-036 **Power Generation of Cascaded Thermoelectric Systems (Invited)**
R. Funahashi[1,2], S. Urata[1], T. Urata[1,2], Y. Matsumura[1], K. Iwasaki[1]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Japan Science and Technology Agency, Japan

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 - 14:00

S9C-P001 **Thermoelectric Properties of Sb-doped Mg_2Si Prepared by Solid State Synthesis**
J.-Y. Jung, K.-H. Park, I.-H. Kim; Chungju National University, Korea

S9C-P002 **Thermoelectric Properties of Single Crystalline Clathrate Ba8AlxSi46-x**
N. Mugita, Y. Nakakohara, T. Motooka, R. Teranishi, S. Munetoh; Kyushu University, Japan

S9C-P003 **Theremoelectric Properties and Oxidation Behavior of Magnesium Silicide**
J. Tani, M. Takahasi, H. Kido; Osaka Municipal Technical Research Institute, Japan

S9C-P004 **Thermoelectric Properties of β-$FeSi_2$ Based Dispersed and Nanodispersed HIPed Bodies**
S. Nishiyama, Y. Sakurai, T. Umetsu; Chiba University, Japan

S9C-P005 **Preparation and Thermoelectric Properties of $(Mn_{1-x}Cr_x)Si_\gamma$ ($\gamma \sim 1.7$) Solid Solution**
Y. Kikuchi, Y. Saito, K. Hayashi, Y. Miyazaki, K. Yubuta, T. Kajitani; Tohoku University, Japan

S9C-P006 **Thermoelectric Characteristics of Doped Mg_2Si Fabricated by Spark Plasma Sintering Method**
K. H. Kim[1], S. M. Choi[1], I. H. Kim[2], S. U. Kim[3], W. S. Seo[1]; [1]Korea Institute of Ceramic Engineering and Technology, Korea, [2]Chungju National University, Korea, [3]Research Institute of Industrial Science and Technology, Korea

S9C-P007 **Effect of Na Addition on Electric Properties of Ca_2Si Sintered Compacts**
C. Wen[1], T. Nonomura[1], A. Kato[2], K. Isobe[3], Y. Kubota[1], T. Nakamura[1], Y. Hayakawa[1], H. Tatsuoka[1]; [1]Shizuoka University, Japan, [2]FDK Corporation, Japan, [3]Industrial Research Institute of Shizuoka Prefecture, Japan

S9C-P008 **Syntheses and Electrical Properties of Hexagonal Phase Group VI Metal Silicide Powders, Sintered Compacts and Bulk Crystals**
T. Nonomura[1], C. Wen[1], M. Yamashita[1], K. Isobe[2], A. Kato[3], Y. Kubota[1], T. Nakamura[1], Y. Hayakawa[1], H. Tatsuoka[1]; [1]Shizuoka University, Japan, [2]Industrial Research Institute of Shizuoka Prefecture, Japan, [3]FDK Corporation, Japan

S9C-P009 **Electrical and Mechanical Properties of a $MoSi_2$-WSi_2-Alumomagnesium Silicate Composite**
D. Titov[1], Y. Kargin[1], N. Popova[2], V. Gorshkov[3]; [1]IMET RAS, Russia, [2]Mendeleyev University of Chemical Technology, Russia, [3]ISMAN RAS, Russia

S9C-P010 Structural and Thermoelectric Properties of Sintered Silicon Clathrates: $Ba_{8-x}A_xGa_{16}Si_{30}$ (A=Sr, Eu; x=0-2) Nominal Compositions
T. Nakabayashi[1,3], M. Hokazono[1,3], H. Anno[1,3], Y. Ba[2,3], K. Koumoto[2,3]; [1]Tokyo University of Science, Yamaguchi, Japan, [2]Nagoya University, Japan, [3]Japan Science and Technology Agency, CREST, Japan

S9C-P011 The Characteristics and Growth Mechanism of Bi_2Te_3 Thin Film Grown on ITO Glass Substrate
J.-Y. Yang[1], M.-H. Lin[2], S.-T. Choi[3], W.-C. Jhong[3], T.-C. Cheng[2], W.-H. Lin[2]; [1]National Nano Device Laboratories, Taiwan, [2]National Kaohsiung University of Applied Sciences, Taiwan, [3]National Cheng Kung University, Taiwan

S9C-P012 The Thermoelectric Performance of Nano-SiC Doped $Bi_{0.3}Sb_{1.7}Te_3$ Composites at Low Temperature
M. Zhou, Z. Chen, L. Li; Chinese Academy of Sciences, China

S9C-P013 Preparation and Thermoelectric Properties of $Ru_{1-x}Fe_xAl_2$
S. Takahashi[1], H. Muta[1], K. Kurosaki[1], S. Yamanaka[1,2]; [1]Osaka University, Japan, [2]University of Fukui, Japan

S9C-P014 Doping Effects on Thermoelectric Properties of Off-Stoichiometric Fe_2VAl Alloys
Y. Tamada, Y. Sandaiji, Y. Nishino; Nagoya Institute of Technology, Japan

S9C-P015 Transport Properties of $ZrNi_{1.05}Sn$ Half-Heusler Compound
H. Muta[1], K. Furo[1], Y. Ohishi[1], K. Kurosaki[1], S. Yamanaka[1,2]; [1]Osaka University, Japan, [2]University of Fukui, Japan

S9C-P016 Rietveld Refinement of Crystal Structure of β-Zn_4Sb_3 with Partial Substitution of In for Sb
S.-D. Cheng; Wuhan University of Technology, China

S9C-P017 Phase Transformation in In_4Se_3-In_4Te_3 Mixture and Its Effect on Thermoelectric Properties
J. Y. Cho[1,2], M. Jung[1], Y. S. Lim[1], W.-S. Seo[1], H.-H. Park[2]; [1]Korea Institute of Ceramic Engineering and Technology, Korea, [2]Yonsei University, Korea

S9C-P018 Thermoelectric Properties of $(AgSbTe_2)_{1-x}(Pb_{0.16}Ge_{0.84}Te)_x$ (x = 0.75, 0.80, 0.85, and 0.90)
A. Yusufu[1], K. Kurosaki[1], H. Muta[1], S. Yamanaka[1,2]; [1]Osaka University, Japan, [2]University of Fukui, Japan

S9C-P019 Synthesis of Bi_2Te_3 Nanosheets using Polyol Process
S. Nishiwaki, T. Itoh; Nagoya University, Japan

S9C-P020 Effect of Alloying on the Thermoelectric Properites of Divalent Hexaborides
K. Inayoshi, K. Iguchi, M. Takeda; Nagaoka University of Technology, Japan

S9C-P021 Preparation and Characterization of Planetary Ball Milled Si-based Clathrates and Their Spark Plasma Sintered Materials
R. Shirataki, M. Hokazono, T. Nakabayashi, H. Anno; Tokyo University of Science, Yamaguchi, Japan Science and Technology Agency, CREST, Japan

S9C-P022 Fabrication of Layered TiS_2-based Thermoelectric Elements by Using Centrifugal Heating Method
T. Aoki[1], C. L. Wan[2], H. Ishiguro[1], H. Morimitsu[1], K. Koumoto[2]; [1]Sinto Kogio, Ltd., Japan, [2]Nagoya University, Japan

S9C-P023 Controlling Independently the Electric and Thermal Properties by Shrinking the Particle Size down to Nanosize
T. Takami[1], M. Horibe[1], M. Itoh[1], J.-G. Cheng[2], J.-S. Zhou[2], J. B. Goodenough[2]; [1]Nagoya University, Japan, [2]University of Texas at Austin, USA

S9C-P024 Thermoelectric Properties of ZnMgO/ZnO Multilayer
M. Nishiguchi, K. Hayashi, Y. Miyazaki, T. Kajitani; Tohoku University, Japan

S9C-P025 Electrical Properties of Fe_2O_3 Added La_2CuO_4 Sintered Bodies
Y. Okada, S. Nishiyama; Chiba University, Japan

S9C-P026 Microstructure and Thermoelectric Properties of Cu-doped α-Fe_2O_3 for Power Generation
G. W. Lee[1], H. K. Hwang[1], Y. G. Choi[1], W. S. Seo[2], K. Park[1]; [1]Sejong University, Korea, [2]Korea Institute of Ceramic Engineering and Technology, Korea

Symposium 9C

S9C-P027 **Electric and Thermoelectric Properties in $Cu_{1+x}Mn_{2-x}O_{4+\delta}$**
K. Fukao, H. Nakayama, N. Watnabe, F. Munakata; Tokyo City University, Japan

S9C-P028 **Thermoelectric Properties of Bulk Ga Doped ZnO**
P. Jood, G. Peleckis, X. L. Wang, S. X. Dou; University of Wollongong, Australia

S9C-P029 **Microstructure and High-temperature Thermoelectric Properties of $Zn_{1-x}Ce_xO$ ($0 \le x \le 0.02$)**
H. K. Hwang[1], Y. G. Choi[1], W. S. Seo[2], K. Park[1]; [1]Sejong University, Korea, [2]Korea Institute of Ceramic Engineering and Technology, Korea

S9C-P030 **Structure and Thermoelectric Properties of Double-Pervskite Oxides A_2FeMoO_6 and A_2MnMoO_6 with A-site Substitution**
T. Sugahara[1], M. Ohtaki[2], K. Kurosaki[1], H. Muta[1], Y. Ohishi[1], S. Yamanaka[1]; [1]Osaka University, Japan, [2]Kyushu University, Japan

S9C-P031 **Thermoelectric Properties of p-type Perovskite Compounds $LaCoO_3$ Systems Containing the A-site Vacancy**
M. Anzai, H. Kawakami, M. Saito, H. Yamamura; Kanagawa University, Japan

S9C-P032 **Microstructure and Thermoelectric Properties of Ag-added $Na(Co_{1-x}Ag_x)_2O_4$ ($0 \le x \le 0.25$) Thermoelectric Materials**
G. W. Lee[1], J. W. Choi[1], W.-S. Seo[2], K. Park[1]; [1]Sejong University, Korea, [2]Korea Institute of Ceramic Engineering and Technology, Korea

S9C-P033 **Crystal Growth and Power Factor of $Ba_{12}Co_{11}O_{33-\delta}$ Having a Pseudo–one–dimensional Structure**
K. Iwasaki[1], D. Kitagawa[2], S. Watanabe[2], M. Yoshino[2], T. Nagasaki[2], T. Matsui[2]; [1]Toyota Boshoku Corporation, Japan, [2]Nagoya University, Japan

S9C-P034 **n-type Oxide Thermoelectric Materials $(CaO)(CaMnO_3)_n$ ($n = 1, 2, 3 \& \infty$)**
X. Y. Huang[1], L. D. Chen[1], Y. Miyazaki[2], T. Kajitani[2]; [1]CAS, China, [2]Tohoku University, Japan

Symposium 9D: Ceramics for Electricity; Advanced Superconducting Materials

Main Organizers
- Eiji Takayama-Muromachi, National Institute for Materials Science, Japan
- Hiroaki Kumakura, National Institute for Materials Science, Japan

Co-Organizers
- Wilfried Goldacker, Forschungszentrum Karlsruhe, Germany
- Eric E. Hellstrom, Florida State University, USA
- Yanwei Ma, Chinese Academy of Sciences, China
- Ken-ichi Sato, Sumitomo Electric Industries, Ltd., Japan

Oral Session

Monday, November 15

Room: 1008

14:15 - 18:00: Iron-Based Superconductors

Chairs: Eiji Takayama-Muromachi (National Institute for Materials Science, Japan) and Wilfried Goldacker (Karlsruhe Institute of Technology, Germany)

14:15 - 14:45
S9D-001 **Searching for New Superconductors in Iron Pnictides (Invited)**
Z.-A. Ren; Chinese Academy of Sciences, China

14:45 - 15:15
S9D-002 **The 11 family Iron-based Superconductors (Invited)**
Y. Takano[1,2]; [1]National Institute for Materials Science, Japan, [2]Japan Science and Technology Agency TRiP, Japan

15:15 - 15:30
S9D-003 **Revealing Electronic and Structural Phases in Iron-based Superconductors with Electron Energy-Loss Spectroscopy**
J. C. Idrobo[1,2], M. F. Chisholm[2], M. Prange[1,2], J. Tao[3], Y. Zhu[3], Z.-A. Ren[4], Z. X. Zhao[4], S. J. Pennycook[2,1], S. T. Pantelides[1,2]; [1]Vanderbilt University, USA, [2]Oak Ridge National Laboratory, USA, [3]Brookhaven National Laboratory, USA, [4]Chinese Academy of Sciences, China

15:30 - 16:00
S9D-004 **Effect of Hydroxide Incorporation on High-pressure Synthesis of LnFeAsO-based Superconductors (Ln: Lanthanoid) (Invited)**
A. Iyo[1,2,5], P. M. Shirage[1], K. Miyazawa[1,2], S. Ishida[1,3], K. Kihou[1,5], M. Nakajima[1,3], C. H. Lee[1,5], H. Kito[1,5], Y. Tomioka[1,5], T. Ito[1,5], H. Yamashita[4], H. Mukuda[4,5], K. Tokiwa[2], S. Uchida[3,5], H. Eisaki[1,5]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Tokyo University of Science, Japan, [3]University of Tokyo, Japan, [4]Osaka University, Japan, [5]Japan Science and Technology Agency, Japan

16:00 - 16:15 **Break**

16:15 - 16:30
S9D-005 **Drastic Suppression of the Superconductivity of $LaFeAsO_{085}$ by a Nonmagnetic Impurity**
Y. F. Guo, Y. G. Shi, S. Yu, A. A. Belik, K. Yamaura, E. Takayama-Muromachi; National Institute for Materials Science, Japan

16:30 - 16:45
S9D-006 **Control of Electronic and Magnetic Properties of Nitride Thin Films by Doping: The Cases of Chromium Nitride and Boron Nitride**
K. Inumaru, A. Anzai, M. Fuchigami, S. Izumi, K. Koyama, S. Yamanaka; Hiroshima University, Japan

Symposium 9D

16:45 - 17:15
S9D-007 **Development of Iron-Based Superconducting Wires and Tapes (Invited)**
Y. Ma; Chinese Academy of Sciences, China

17:15 - 17:45
S9D-008 **Critical Current Properties of the Iron Based Pnictide Superconducting Wires (Invited)**
K. Togano, A. Matsumoto, H. Kumakura; National Institute for Materials Science, Japan

17:45 - 18:00
S9D-009 **Preparation of Iron-based Superconducting Wire Using 11 Phase**
T. Ozaki, K. Deguchi, Y. Mizuguchi, H. Kumakura, Y. Takano; National Institute for Materials Science, Japan

Tuesday, November 16

Room: 1008

9:00 - 11:45: Coated Conductors and SQUID

Chairs: Hiroaki Kumakura (National Institute for Materials Science, Japan) and
Yoshihiko Takano (National Institute for Materials Science, Japan)

9:00 - 9:30
S9D-010 **Research & Development of REBCO Superconducting Coated Conductors in Japan (Invited)**
Y. Shiohara, T. Izumi, Y. Yamada; International Superconductivity Technology Center, Japan

9:30 - 10:00
S9D-011 **Cables From HTS Coated Conductors for High DC and AC Transport Currents (Invited)**
W. Goldacker, S. I. Schlachter; Institute for Technical Physics, Germany

10:00 - 10:30
S9D-012 **Preparation of $YBa_2Cu_3O_{7-x}$ Superconducting Thick Films on Dip-Coated Y-ZrO_2 Buffered Nickel Substrates**
R. Closset[1,2], F. Boschini[1], B. Vertruyen[1], M. Dirickx[2], R. Cloots[1]; [1]University of Liège, Belgium, [2]Royal Military Academy, Belgium

10:30 - 10:45 **Break**

10:45 - 11:15
S9D-013 **Nano-SQUID Magnetometry of Nanoscale Magnetic Systems (Invited)**
E. Romans[1], S. Rozhko[1], A. Blois[1], L. Hao[2], D. Cox[2], J. Gallop[2]; [1]University College London, UK, [2]National Physical Laboratory, UK

11:15 - 11:45
S9D-014 **SQUID Probe Microscope (Invited)**
H. Itozaki[1], T. Hayashi[2], N. Watanabe[1], Y. Nakatani[1], M. Tachiki[3]; [1]Osaka University, Japan, [2]Sendai National College of Technology, Japan, [3]National Institute of Materials Science, Japan

14:15 - 17:45: Wires and Tapes

Chairs: Yanwei Ma (Chinese Academy of Sciences, China) and
Kazumasa Togano (National Institute for Materials Science, Japan)

14:15 - 14:45
S9D-015 **Recent R&D Progress on DI-BSCCO Wires with High Critical Current Propeties (Invited)**
T. Kagiyama[1], S. Kobayashi[1], K. Yamazaki[1], M. Kikuchi[1], S. Yamade[1], T. Nakashima[1], E. Shizuya[1], K. Sato[1], T. Kiss[2], H. Kitaguchi[3]; [1]Sumitomo Electric Industries, Ltd., Japan, [2]Kyushyu University, Japan, [3]National Institute for Materials Science, Japan

14:45 - 15:15

S9D-016 **Analysis of Distribution of Critical Current of Bent-Damaged Bi2223 Composite Tape**
S. Ochiai[1], H. Okuda[1], M. Sugano[1], M. Hojo[1], K. Osamura[2], T. Kuroda[3], H. Kumakura[3], H. Kitaguchi[3], K. Itoh[3], H. Wada[3]; [1]Kyoto University, Japan, [2]Research Institute for Applied Sciences, Japan, [3]National Institute for Materials Science, Japan

15:15 - 15:45

S9D-017 **Microstructures and Superconducting Properties of Bi,Pb-2223 Thin Film Fabricated by Sputtering Method**
A. Matsumoto[1], H. Kitaguchi[1], H. Kumakura[1], T. Doi[2], T. Izumi[2], Y. Hakuraku[2]; [1]National Institute for Materials Science, Japan, [2]Kagoshima University, Japan

15:45 - 16:15 **Break**

16:15 - 16:45

S9D-018 **Development of MgB_2 Superconducting Wires For Practical Applications (Invited)**
J. H. Kim[1], A. Matsumoto[2], H. Kumakura[2], M. Rindfleisch[3], M. Tomsic[3], S. X. Dou[1]; [1]University of Wollongong, Australia, [2]National Institute for Materials Science, Japan, [3]Hyper Tech Research, Incorporated, USA

16:45 - 17:15

S9D-019 **Promising Approaches to Development of MgB_2 Bulks and Tapes with High Critical Current Performance (Invited)**
J. Shimoyama[1], A. Yamamoto[1], H. Ogino[1], K. Kishio[1], S. Horii[2]; [1]University of Tokyo, Japan, [2]Kochi University of Technology, Japan

17:15 - 17:45

S9D-020 **Development of High Performance MgB_2 Wires (Invited)**
H. Kumakura[1], J. M. Hur[2], K. Togano[2], A. Matsumoto[2], H. Wada[1], K. Kimurae[2]; [1]Institute for Materials Science, Japan, [2]The University of Tokyo, Japan

Poster Session

Monday, November 15

Room: Event Hall

12:00 - 14:00

S9D-P001 **Effect of Non-Magnetic Impurity on the Optimally Carrier Doped Superconductor $BaFe_{1.87}Co_{0.13}As_2$**
J. Li[1,2], Y. F. Guo[1,3], Y. G. Shi[1,3], S. Yu[1], K. Yamaura[1,2,3], E. Takayama-Muromachi[1,2,3]; [1]National Institute for Materials Science, Japan, [2]Hokkaido University, Japan, [3]Japan Science and Technology Agency, Transformative Research-Project on Iron Pnictides, Japan

S9D-P002 **Effect of Oxygen Deficiencies in $Sr_4Sc_2O_xFe_2As_2$ Prepared Under High Pressure**
S. B. Zhang[1], Y. F. Guo[1], Y. G. Shi[1], K. Yamaura[1,2], M. Miyakawa[1,2], E. Takayama-Muromachi[1,2]; [1]National Institute for Materials Science, Japan, [2]Japan Science and Technology Agency, Japan

S9D-P003 **Preparation and Physical Properties of In0.66Nb0.33BaLaCuOy and In0.66Ta0.33BalaCuOy**
Y. Watanabe, S. Kambe, O. Ishii; Yamagata University, Japan

S9D-P004 **Current Dependence of Josephson-Vortex Flow Resistance in Underdoped $Bi_2Sr_2CaCu_2O_{8+y}$**
S. Yu, S. Ooi, T. Mochiku, K. Hirata; National Institute for Materials Science, Japan

S9D-P005 **Transport Performance of HTS Current Leads Prepared by YBCO Tapes**
Y. Ishii[1], Y. Yamada[1], K. Tachikawa[1], Y. Aoki[2], T. Koizumi[2], A. Kaneko[2], H. Tamura[3], T. Mito[3]; [1]Tokai University, Japan, [2]SWCC Showa Cable System, Japan, [3]National Institute for Fusion Science, Japan

S9D-P006 **Superconducting Properties and Workability of MgB_2 Thin Wires Sheathed with Stainless Steel**
M. Kanazawa[1], Y. Yamada[1], K. Tachikawa[1], K. Kajikawa[2], H. Kumakura[3]; [1]Tokai University, Japan, [2]Kyushu University, Japan, [3]National Institute for Materials Science, Japan

Symposium 9D

S9D-P007 **Correlation between the Critical-current Anisotropy and the Microstructure of *ex situ* Powder-in-tube Processed MgB_2 Tapes**
T. Kuroda, T. Nakane, H. Kumakura; National Institute for Materials Science, Japan

S9D-P008 **Annealing Effects on Electrical Resistivity of $(Pb_{0.5}Fe_{0.5})Sr_2(Y_{0.5}Ca_{0.5})Cu_2O_z$**
T. Maeda, K. Yamasaki, T. Tashiro, S. Takechi, S. Isono, M. Haruta, S. Horii; Kochi University of Technology, Japan
* Presented on Tuesday, November 16.

Symposium 10: Ceramics and Composites for Advanced Nuclear Energy and Hazardous Waste Treatent Applications

Incorporating the 9th International Workshop on SiC/SiC Ceramic Composites for Fusion Energy Applications and the 3rd International Workshop on Carbon and Silicon Carbide Composites for Advanced Fission.
Supported by Division of Materials Science and Technology, Atomic Energy Society of Japan.

Main Organizers
- Tatsuya Hinoki, Kyoto University, Japan
- Yutai Katoh, Oak Ridge National Laboratory, USA
- Alex Cozzi, Savannah River National Laboratory, USA

Co-Organizers
- Aldo R. Boccaccini, Imperial College London, United Kingdom
- Shaoming Dong, Shanghai Institute of Ceramics, China
- Monica Ferraris, Politecnico di Torino, Italy
- Hans Hegeman, NRG Petten, The Netherlands
- Fumihisa Kano, Toshiba Corporation, Japan
- Akira Kohyama, Muroran Institute of Technology, Japan
- Jacques Lamon, University of Bordeaux, France
- Charles Lewinsohn, Ceramatec, Inc., USA
- Ji Yeon Park, Korea Atomic Energy Research Institute, Korea
- Kazuhiro Sawa, Japan Atomic Energy Agency, Japan
- Lance Snead, Oak Ridge National Laboratory, USA
- Yoshikazu Suzuki, Kyoto University, Japan
- Takashi Takagi, Ibiden Co., Ltd., Japan
- Toyohiko Yano, Tokyo Institute of Technology, Japan

Oral Session

Monday, November 15

Room: 1001

14:15 - 15:45: Overview for SiC/SiC Composites R&D

Chairs: Tatsuya Hinoki (Kyoto University, Japan) and Lance L. Snead (Oak Ridge National Laboratory, USA)

14:15 - 14:45
S10-001 **The Present Status of SiC/SiC R & D for Nuclear Application in Japan (Invited)**
A. Kohyama; Muroran Institute of Technology, apan

14:45 - 15:15
S10-002 **EU Overview of SiC/SiC Developments (Invited)**
S. M. G. de Vicente[1], E. Diegele[2], N. Baluc[3]; [1]EFDA CSU-Garching, Germany, [2]F4E, Spain, [3]CRPP-EPFL, Switzerland

15:15 - 15:45
S10-003 **Silicon Carbide Composite Research and Development in U.S. Fusion Programs: Status and Recent Achievement**
Y. Katoh[1], L. L. Snead[1], K. Ozawa[1], C. H. Henager[2], S. Sharafat[3], R. J. Shinavski[4], M. E. Sawan[5]; [1]Oak Ridge National Laboratory, USA, [2]Pacific Northwest National Laboratory, USA, [3]University of California, Los Angeles, USA, [4]Hypertherm High-Temperature Composites, Inc., USA, [5]University of Wisconsin-Madison, USA

15:45 - 16:00 **Break**

Symposium 10

16:00 - 18:00: Radiation Effect

Chairs: Yutai Katoh (Oak Ridge National Laboratory, USA) and Toyohiko Yano (Tokyo Institute of Technology, Japan)

16:00 - 16:30
S10-004 **New Method to Quantifying the Helium Bubbles in SiC_f/SiC Composites Irradiated under Simulated Fusion Reactor Conditions (Invited)**
J.-J. Kai; National Tsing Hua University, Taiwan

16:30 - 16:45
S10-005 **Stability and Properties of SiC and its Composites at High Neutron Fluence**
L. L. Snead[1], Y. Katoh[1], K. Ozawa[1], T. Nozawa[2]; [1]Oak Ridge National Laboratory, USA, [2]Japan Atomic Energy Agency, Japan

16:45 - 17:00
S10-006 **Irradiation Effect on Mechanical Properties of NITE-SiC/SiC Composites**
T. Hinoki[1], K. Ozawa[2], K. Toyoshima[1], Y.-B. Choi[3], Y. Katoh[2], T. Koyanagi[1], S. Kondo[1], A. Kohyama[4], A. Hasegawa[5]; [1]Kyoto University, Japan, [2]Oak Ridge National Laboratory, USA, [3]Hiroshima University, Japan, [3]Muroran Institute of Technology, Japan, [4]Tohoku University, Japan

17:00 - 17:15
S10-007 **Evaluation of Fracture Resistance of Advanced SiC/SiC Composites after Neutron Irradiation**
K. Ozawa[1], Y. Katoh[1], T. Nozawa[2], T. Hinoki[3], L. L. Snead[1]; [1]Oak Ridge National Laboratory, USA, [2]JAEA, Japan, [3]Kyoto University, Japan

17:15 - 17:30
S10-008 **Dimensional Stability of SiC Irradiated under Applied Stress**
S. Kondo, T. Koyanagi, T. Hinoki; [1]Kyoto University, Japan

17:30 - 17:45
S10-009 **Ion-Irradiation Effect on Microstructural Evolutions and High-Temperature Behaviours of Advanced SiC Fibers**
K. Shimoda[1], C. Colin[1], H. Kishimoto[2], S. Doriot[1], L. Chaffron[1]; [1]Commisarait a l'Energy Atomique de Saclay, France, [2]Muroran Institute Technology, Japan

17:45 - 18:00
S10-010 **A First Principles Study of Frenkel Pairs Recombinations in Silicon Carbide Leading to the Formation of Antisites**
G. Roma, J.-P. Crocombette; CEA, France

Tuesday, November 16

Room: 1001

9:00 - 10:30: Characterization

Chairs: Charles Henager (Pacific Northwest National Laboratory, USA) and Ji-jung Kai (National Tsing Hua University, Taiwan)

9:00 - 9:15
S10-011 **Study on Fracture Behavior of 2D-C/C Composite for Application to Control Rod of Very High Temperature Reactor**
J. Sumta[1], I. Fujita[1], T. Shibata[1], T. Makita[2], T. Takagi[3], E. Kunimoto[4], K. Sawa[1], J.-Y. Park[5]; [1]Japan Atomic Energy Agency, Japan, [2]Tokai Carbon Co., Ltd., Japan, [3]Ibiden Co., Ltd., Japan, [4]Toyo Tanso Co., Ltd., Japan, [5]Korea Atomic Energy Research Institute, Korea

9:15 - 9:30
S10-012 **Tensile, Compressive and In-Plane/Inter-Laminr Shear Failure Behavior of CVI- and NITE-SiC/SiC Composites**
T. Nozawa[1], Y. Choi[2], T. Hinoki[3], H. Kishimoto[4], A. Kohyama[4], H. Tanigawa[1]; [1]Japan Atomic Energy Agency, Japan, [2]Hiroshima University, Japan, [3]Kyoto University, Japan, [4]Muroran Institute of Technology, Japan

9:30 - 9:45
S10-013 **Mechanical and Thermal Properties of $Y_2Ti_2O_7$ Ceramics**
L. F. He, J. Shirahata, K. Kayamura, M. Takeda, T. Nakayama, T. Suzuki, H. Suematsu, K. Niihara; Nagaoka University of Technology, Japan

9:45 - 10:00
S10-014 **SiC Metallic Transmutant Production in Fusion Systems**
M. E. Sawan[1], Y. Katoh[2]; [1]University of Wisconsin-Madison, USA, [2]Oak Ridge National Laboratory, USA

10:00 - 10:15
S10-015 **Correlation of Microstructure and Compressive Strength of C/C Composite Using X-ray Tomography**
J. Sumita[1], T. Shibata[1], E. Kunimoto[2], M. Yamaji[2], T. Konishi[2], K. Sawa[1]; [1]Japan Atomic Energy Agency, Japan, [2]Toyo Tanso Co., Ltd., Japan,

10:15 - 10:30
S10-016 **In-situ Observation of Fracture Behavior on Nano Structure in NITE SiC/SiC Composite by HVEM**
T. Shibayama[1], G. Matsuo[1], K. Hamada[1], S. Watanabe[1], H. Kishimoto[2]; [1]Hokkaido University, Japan, [2]Muroran Institute of Techniology, Japan

10:30 - 10:45 **Break**

10:45 - 11:45: Material Design and Synthesis

Chairs: Monica Ferraris (Politecnico di Torino, Italy) and Tamaki Shibayama (Hokkaido University, Japan)

10:45 - 11:15
S10-017 **Development and Test of SiCf/SiC Compact Intermediate Heat Exchanger for High Temperature (Invited)**
S. Konishi, Y. Yamamoto, K. Noborio, Y. Takeuchi, T. Hinoki; Kyoto University, Japan

11:15 - 11:30
S10-018 **Fabrication of SiC Continous Fiber-Reinforced SiC Composite Using Electrophoretic Deposition and Hot-Pressing**
T. Yano, K. Yoshida; Tokyo Intitute of Technology, Japan

11:30 - 11:45
S10-019 **Silicon Carbide – Processing and Interactions in a TBM Environment**
A. K. Suri, R. K. Fotedar, A. Mukherjee, N. Krishnamurthy; Bhabha Atomic Research Centre, India

14:15 - 16:00: Overview for Generation IV CMC R&D

Chairs: Akira Kohyama (Muroran Institute of Technology, Japan) and
Sehila Gonzalez de Vicente (European Fusion Development Agreement, Germany)

14:15 - 14:45
S10-020 **R&Ds on Application of Carbon-Carbon Composite to HTGR/VHTR (Invited)**
M. Eto[1], T. Konishi[1], T. Shibata[2], J. Sumita[2]; [1]Toyo Tanso Co., Ltd., Japan, [2]Japan Atomic Energy Agency, Japan

14:45 - 15:15
S10-021 **Potential Applications of SiC-based CMC in Advanced Nuclear Energy (Invited)**
S. M. Dong, B. Lu, Y. S. Ding, X. Y. Zhang, P. He, L. Gao, Z. Wang; Chinese Academy of Sciences, China

15:15 - 15:45
S10-022 **Overview of SiC- and C-based Materials R&D for Next Generation Nuclear Applications in Korea (Invited)**
J. Y. Park, C. H. Jung, W.-J. Kim; Korea Atomic Energy Research Institute, Korea

Symposium 10

15:45 - 16:00

S10-023 **Ceramic Composite for High Temperature Gas-cooled Reactors**

Y. Katoh[1], L. L. Snead[1], T. D. Burchell[1], W. E. Windes[2], R. J. Shinavski[3], S. T. Gonczy[4]; [1]Oak Ridge National Laboratory, USA, [2]Idaho National Laboratory, USA, [3]Hypertherm High-Temperature Composites, Inc., USA, [4]Gateway Materials Technology, Inc., USA

16:00 - 16:15 **Break**

16:15 - 18:15: Joining and Coating

Chairs: Kazuhiro Sawa (Japan Atomic Energy Agency, Japan) and Dong Shaoming (Shanghai Institute of Ceramics, China)

16:15 - 16:30

S10-024 **Joining SiC Ceramics and Composites for Nuclear Applications**

M. Ferraris, V. Casalegno, S. Han, S. Rizzo, M. Salvo, A. Ventrella; Politecnico di Torino, Italy

16:30 - 16:45

S10-025 **Silicon Carbide Joining Research and Development in U.S. Fusion Program: Status and Recent Achievements**

C. H. Henager Jr.[1], Y. Katoh[2], T. Hinoki[3], M. Ferraris[4], R. J. Shinavski[5]; [1]Pacific Northwest National Laboratory, USA, [2]Oak Ridge National Laboratory, USA, [3]Kyoto University, Japan, [4]Politecnico di Torino, Italy, [5]Hypertherm High-Temperature Composites, Inc., USA

16:45 - 17:00

S10-026 **Development of Joining Technique for Compact Intermediate Heat Exchanger Using NITE-SiC/SiC Composites**

Y.-H. Park, T. Hinoki, S. Konishi; Kyoto University, Japan

17:00 - 17:15

S10-027 **Diffusion Bonding Technology of Tungsten and SiC/SiC Composites for Nuclear Applications**

H. Kishimoto[1], T. Abe[1], T. Shibayama[2], A. Kohyama[1]; [1]Muroran Institute of Technology, Japan, [2]Hokkaido University, Japan

17:15 - 17:30

S10-028 **Joining of SiC and SiC/SiC Composite to F82H Steel**

Z. Zhong[1,2], T. Hinoki[2]; [1]National Institute of Materials Science, Japan, [2]Kyoto University, Japan

17:30 -17:45

S10-029 **Thermodynamic and Experimental Study on the Chemical Vapor Deposition of Zirconium Carbide Coatings**

Q. Liu, L. Zhang, Y. Wang, L. Cheng; Northwestern Polytechnical University, China

17:45 -18:00

S10-030 **Silicon Carbide Coating on Metallic Substrates – Methods, Properties and Environmental Effects**

N. Krishnamurthy, S. Ramanathan, A. K. Suri; Bhabha Atomic Research Centre, India

18:00 -18:15

S10-031 **Fabrication and Characterization of Dip-Coated Silicon Carbide Coatings**

K. Ramadurai[1], P. T. Rao[1], P. K. Mollick, D. Sathiyamoorthy[1,2]; [1]Vashi Complex, India, [2]Homi Bhabha National Institute, India

Poster Session

Monday, November 15

Room: Event Hall

12:00 - 14:00

S10-P001 **SiC/SiC and W/SiC/SiC Composite Heater by NITE-method for IFMIF and Fission Reactor Irradiation Rigs**
T. Abe[1], H. Kishimoto[1], J.-S. Park[1,2], H.-C. Jung[2], A. Kohyama[1,2]; [1]Muroran Institute of Technology, Japan, [2]Institute of Energy Science and Technology, Co.Ltd., Japan

S10-P002 **Thermal Insulator of Porous SiC/SiC Composites for Fusion Blanket System**
K. Satori[1], H. Kishimoto[2], J.-S. Park[1,2], H.-C. Jung[2], Y.-H. Park[3], Y.-J. Lee[3], T. Hinoki[3], A. Kohyama[1,2]; [1]Muroran Institute of Technology, Japan, [2]Institute of Energy Science and Technology, Co.Ltd., Japan, [3]Kyoto University, Japan

S10-P003 **Proposal for a New Brazing Alloy and a Single-step Technique for Joining CFC Composites to Copper**
M. Ferraris[1], M. Salvo[1], V. Casalegno[1], T. Koppitz[2], G. Pintsuk[2]; [1]Materials Science and Chemical Engineering Department- Politecnico di Torino, Italy , [2]EURATOM Association, Germany

S10-P004 **Metallurgical and Mechanical Joining of RAFM Steel and SiC/SiC Composite for Fusion System**
T. Ono[1], H. Kishimoto[1], J.-S. Park[1,2], H.-C. Jung[2], A. Kohyama[1,2]; [1]Muroran Institute of Technology, Japan, [2]Institute of Energy Science and Technology, Co. Ltd., Japan

S10-P005 **Fracture Toughness Evaluation of Neutron-irradiated Ceramics**
M. Watanabe[1], T. Shikama[1], Y. Tachi[2]; [1]Tohoku University, Japan, [2]Japan Atomic Energy Agency, Japan

S10-P006 **Influence of Fiber Weave on Proportional Limit Stress of SiC/SiC Composites**
K. Toyoshima[1], T. Hinoki[1], A. Sato[2], H. Nonaka[2]; [1]Kyoto University, Japan, [2]Gunze Limited, Japan

S10-P007 **Influence of Grain Size on Thermal Conductivity of SiC Ceramics**
Y. Lee, Y. Park, T. Hinoki; Kyoto University, Japan

S10-P008 **Microstructure and Mechanical Property of SiC_f/SiC and C_f/SiC Composites**
S. P. Lee[1], K. S. Cho[1], J. K. Lee[1], D. S. Bae[1], J. H. Byun[3]; [1]Dongeui University, Korea, [2]Korea Institute of Materials Science, Korea

S10-P009 **Indentation Fracture Toughness of Silicon Carbide after Neutron Irradiation and Helium Implantation**
S. Nogami, A. Hasegawa; Tohoku University, Japan

S10-P010 **The Microstructure Evolution of C-C Composite and Energy Storage of Nuclear Grade Graphite in Simulated Very High Temperature Gas Cooled Reactor**
S.-C. Tsai, Y.-T. Hsieh, F-R. Chen, J.-J. Kai; National Tsing-Hua University, Taiwan

S10-P011 **Microstructure and Property Changes of SiC Fibers under Thermal and Ion Irradiation Environments**
K. Hayakawa[1], H. Kishimoto[1], J.-S. Park[1,2], H.-C. Jung[2], A. Kohyama[1,2]; [1]Muroran Institute of Technology, Japan, [2]Institute of Energy Science and Technology,Co.Ltd., Japan

S10-P012 **Microstructure Evolution of Single Crystal SiC and Hi-Niclon Type-S SiC Composite under Ion Irradiation at Elevated Temperatures**
C. H. Chen, Z. R. He, J. J. Kai, F. R. Chen; National Tsing Hua University, Taiwan

S10-P013 **Irradiation Effects on Interfacial Stress in SiC/SiC Composites through Differential Swelling**
T. Koyanagi, S. Kondo, T. Hinoki; Kyoto University, Japan

Symposium 10

S10-P014 Effect of Ion Irradiation on the Crack Deflection Pattern at the PyC Interface in SiC/SiC Composites
M. Kanamoto, T. Koyanagi, S. Kondo, T. Hinoki; Kyoto University Japan

S10-P015 The Research of Rising Efficiency of Porous Ceramic Pellets in Catalytic Ozonation of Dey Wastewater Treatment
L. Yin, Y. Zheng; Nanjing University, China

S10-P016 Characterization of Aminopropyltriethoxysilane-functionalized Polycaprolactone-Montmorillonite Beads for Heavy Metal Biosorption
E. Magdaluyo Jr., E. Dayhon, M. delos Angeles, R. J. dela Cruz, L. de Sales-Papa, P. A. de Yro, E. dela Pena, L. J. Diaz; University of the Philippines, Philippines

S10-P017 Characterization and Cadmium Ion-Removing Property of Adsorbents Synthesized from Inorganic Wastes
K. Ooishi, K. Ogino, H. Nishioka, Y. Muramatsu; University of Hyogo, Japan

S10-P018 Preparation of Calcium Silicate Hydrate Gels/Diatomaceous Earth Composites by Hydrothermal Process
H. Maeda, E. H. Ishida; Tohoku University, Japan

S10-P019 Leaching Behavior of Magnesium-Zinc-Phosphate Glasses for Nuclear Waste Immobilization
T. Imai[1], T. Okura[1], H. Monma[2]; [1]Kogakuin University, Japan, [2]Hosei University, Japan

S10-P020 Adsorption of Hydrocarbons on Modified Nanoclays
M. Sharafimasooleh[1], S. Bazgir[1], M. Tamizifar[2], A. Nemati[3], M. Validi[1]; [1]Islamic Azad University, Iran, [2]University of Science and Technology, Iran, [3]Sharif University of Technology, Iran

S10-P021 Precision of the Eutectic Points Determination by the Isopleths
V. Lutsyk[1,2], O. Sumkina[1], V. Savinov[1]; [1]RAS, Russia, [2]Buryat State University, Russia

S10-P022 Crystal Structure Analysis of Single Phase Lithium Titanate with Added Li by Neutron Powder Diffraction
K. Mukai[1], K. Sasaki[1], K. Omoto[2], T. Hashimoto[3], K. Nomura[4], H. Kageyama[4], T. Hoshino[5], T. Terai[1], M. Yashima[2]; [1]The University of Tokyo, Japan, [2]Tokyo Institute of Technology, Japan, [3]Nihon University, Japan, [4]National Institute of Advanced Industrial Science and Technology, Japan, [5]Japan Atomic Energy Agency, Japan

S10-P023 Synthesis of Cs-titanosilicate with Pollucite Structure for Cs-stabilization
I. Yanase, T. Takahashi, M. Tomizawa, H. Kobayashi; Saitama University, Japan

S10-P024 Novel Ceramic Foam Composites Infiltrated with Refractory Metal
E. J. Faierson, K. V. Logan; Virginia Tech, USA

Symposium 11: Advanced Ceramic Surface for Environmental Purification: Photocatalysis and Wettability Control

Main Organizers
- Toshiya Watanabe, The University of Tokyo, Japan
- Masahiro Miyauchi, AIST, Japan
- Masato Wakamura, Fujitsu LTD, Japan

Co-Organizers
- Masato Machida, Kumamoto University, Japan
- Akira Nakajima, Tokyo Institute of Technology, Japan
- Hisashi Ohsaki, AIST, Japan
- Ming Show Wong, National Dong Hwa University Hualien, Taiwan
- Jinhua Ye, NIMS, Japan
- Hiromi Yamashita, Osaka University, Japan
- Jincai Zhao, Chinese Academy of Sciences (CAS), China

Oral Session

Monday, November 15

Room: 702

14:15 - 15:45: Photocatalyst Design

Chair: Toshiya Watanabe (The University of Tokyo, Japan)

14:15 - 14:45
S11-001 **Applications of Nano-structured Photocatalysts Designed Using Zolites and Mesoporous Silica Materials (Invited)**
H. Yamashita, Y. Horiuchi, Y. Kuwahara, T. Kamegawa, K. Mori; Osaka University, Japan

14:45 - 15:00
S11-002 **Nitrides, Oxynitrides: Photocatalysts for Visible-light Applications**
E. Ray[1], F. Chevire[1], F. Tessier[1], L. L. Gendre[1], C. L. Paven[1], R. Benzerga[1], K. Domen[2]; [1]Universite de Rennes 1, France, [2]The University of Tokyo, Japan

15:00 - 15:15
S11-003 **Design of Structured Macroporous TiO_2 Thin Films and Investigations on their Photofunctional Properties**
T. Kamegawa, N. Suzuki, H. Yamashita; Osaka University, Japan

15:15 - 15:30
S11-004 **Synthesis and Characterization of Ti-containing Mesoporous Silica Thin Films with Highly Hydrophilic Property on Various Materials**
Y. Horiuchi, T. Kamegawa, K. Mori, H. Yamashita; Osaka University, Japan

15:30 - 15:45
S11-005 **Visible-Light-Driven Super-Hydrophilicity by Interfacial Charge Transfer between Metal Ions and Metal Oxide Nanostructures**
M. Miyauchi; National Institute of Advanced Industial Science and Technology, Japan

15:45 - 16:15 **Break**

Symposium 11

16:15 - 18:00: Process of Photocatalyst

Chair: Masahiro Miyauchi (National Institute of Advanced Industrial Science and Technology, Japan)

16:15 - 16:45
S11-006 **Vapor Deposited Carbon-containing Titania Thin Film Photocatalysts: Preparation, Structure and Properties (Invited)**
M.-S. Wong; National Dong Hwa University, Taiwan

16:45 - 17:00
S11-007 **Effect of Synthesis Methods on the Photocatalytic DeNO$_x$ Activity of $TiO_{2-x}N_y/CaAl_2O_4$:(Eu, Nd) Composites**
H. Li, S. Yin, T. Sato; Tohoku University, Japan

17:00 - 17:15
S11-008 **Prpearation and Characterization of $TiO_{2-x}N_y$/Attapulgite for a Visible Light Responsive Photocatalyst**
P. Zhang, S. Yin, T. Sato; Tohoku University, Japan

17:15 - 17:30
S11-009 **The Synthesis and Photovoltaic Property of Polythiophene-TiO_2 Nanocomposite Film**
Y. Xu[1,2], Y. Ishikawa[1], Q. Feng[1]; [1]Kagawa University, Japan, [2]Jilin University, China

17:30 - 17:45
S11-010 **Anatase TiO_2 Films Crystallized by RF Plasma Treatment**
H. Ohsaki[1], R. Andou[2], A. Kinbara[3], T. Watanabe[3]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Industrial Technology Institute of Ibaraki Prefecture, Japan, [3]The University of Tokyo, Japan

17:45 - 18:00
S11-011 **Preparation and Characterizations of Yb - doped TiO_2 Photocatalyst Film Prepared by RF-magnetron Sputtering Process By Radio-frequency Magnetron Sputtering Process**
S. Yuenyaw[1], K. Saito[2], E. H. Sekiya[2], P. Sujaridworakun[1]; [1]Chulalongkorn University, Thailand, [2]Toyota Technological Institute, Japan

Tuesday, November 16

Room: 702

9:15 - 10:15: Wettability and Photocatalyst Function

Chair: Wong Ming Show (National Dong Hwa University, Taiwan)

9:15 - 9:45
S11-012 **Oxide Surfaces with Higher Dynamic Hydrophobicity (President- Designated)**
T. Watanabe; The University of Tokyo, Japan

9:45 - 10:00
S11-013 **Preparation and Photocatalytic Activity of Niobia Nanosheet Coating Glass**
K. Katsumata[1], S. Okazaki[2], T. Shichi[2], T. Sasaki[3], A. Fujishima[2], N. Matsushita[1], K. Okada[1]; [1]Tokyo Institute of Technology, Japan, [2]Central Japan Railway Company, Japan, [3]National Institute for Materials Science, Japan

10:00 - 10:15
S11-014 **Photocatalytic Purification of Organic Compounds Diluted in Water by TiO_2 Supported on Hydrophobically Modified Porous Silica Materials**
Y. Kuwahara, T. Kamegawa, K. Mori, H. Yamashita; Osaka University, Japan

S11-015 Cancelled

10:15 - 10:45 **Break**

10:45 - 11:45: Material for Environmental Protection

Chair: Hiromi Yamashita (Osaka University, Japan)

10:45 - 11:00
S11-016 **Visible-light-induced Photocatalysts with High Activity: Preparation and Photocatalysis**
W. Wang, M. Shang, L. Zhang, S. Sun, J. Ren, J. Xu, W. Yin; Shanghai Institute of Ceramics, China

11:00 - 11:15
S11-017 **3D Hierarchical Heterostructure: Controllable Synthesis and Enhanced Photocatalytic Degradation Performances**
M. Shang, W. Wang; Chinese Academy of Sciences, China

11:15 - 11:45
S11-018 **Inorganic Polymers for Environmental Protection Applications (Invited)**
K. J. D. MacKenzie; Victoria University of Wellington, New Zealand

14:15 - 16:00: Application of Photocatalyst

Chair: Akira Nakajima (Tokyo Institute of Technology, Japan)

14:15 - 14:45
S11-019 **Commerciallization of Photocatalyst (Invited)**
S. Kato; Photocatalytic Materials Inc., Japan

14:45 - 15:00
S11-020 **Evaluation of Ti K-edge in Photocatalytic Ti-substituted Hydroxyapatite by X-ray Absorption Near Edge Structure Analysis and First-Principles Calculations**
M. Tsukada, K. Nomura, S. Doi, N. Awaji, M. Wakamura; Fujitsu Laboratories Ltd., Japan

15:00 - 15:15
S11-021 **Surface Structure and Properties of Cr(III)-doped Titanium-calcium Hydroxyapatite Photocatalyst**
M. Wakamura[1], H. Tanaka[2], Y. Naganuma[1], N. Yoshida[3], T. Watanabe[3]; [1]Fujitsu Laboratories Ltd., Japan, [2]Shimane University, Japan, [3]The University of Tokyo, Japan

15:15 - 15:30
S11-022 **Fabrication of ZnO-Based Visible Light Photocatalyst by Band-gap Engineering and Multi-electron Reduction**
S. Anandan, M. Miyauchi; National Institute of Advanced Industial Science and Technology, Japan

15:30 - 16:00
S11-023 **Reduction of Friction Drag on the Solid Surface with Various Wettability. (Invited)**
M. Sakai[1], M. Nishimura[1,2], T. Furuta[1,2], A. Nakajima[1,2], A. Fujishima[1,3]; [1]Kanagawa Academy of Science and Technology, Japan, [2]Tokyo Institute of Technology, Japan, [3]Tokyo University of Science, Japan

16:00 - 16:15 **Break**

16:15 - 17:15: Surface of Photocatalyst

Chair: Munetoshi Sakai (Kanagawa Academy of Science and Technology, Japan)

16:15 - 16:30
S11-024 **Photoinduced Surface Friction Force Change of Polycrystalline Rutile Ceramics under UV Irradiation**
K. Okudaira, N. Arimitsu, T. Isobe, A. Nakajima; Tokyo Institute of Technology, Japan

16:30 -16:45
S11-025 **Control of Sliding Acceleration of a Water Droplet on Inclined Hydrophobic Surfaces**
N. Yoshida, T. Watanabe; The Univ. of Tokyo, Japan

16:45 - 17:15
S11-026 **Wettability and Evaporation of Nanoliter-Scale Droplets on Hydrophobic Silane Coatings (Invited)**
A. Nakajima[1,2]; [1]Tokyo Institute of Technology, Japan, [2]Kanagawa Academy of Science and Technology, Japan

Symposium 11

Poster Session

Monday, November 15

Room: Event Hall

12:00 - 14:00

S11-P001 **Hydrophobic Film on Stainless Steel as Bipolar Plate for Polymer Electrolyte Membrane Fuel Cell**
D. Zhang, L. Guo, L. Duan; Wuhan University of Technology, China

S11-P002 **Novel Petal Effect: Hafnia Films Containing Glycolic Acid Show Hydrophobicity and High Adhesive Force to Water Droplets**
A. Tonosaki, T. Nishide; Nihon University, Japan

S11-P003 **Water Purification by WO_3 Photocatalysis and Ozonation under Visible Light Irradiation**
T. Mano, S. Nishimoto, Y. Kameshima, M. Miyake; Okayama University, Japan

S11-P004 **Preparation and Property of Tio_2 Sphere Particles with Narrow Poresize Distribution by Organic Template Method**
S. Uchiyama, T. Isobe, A. Nakajima; Tokyo Institute of Technology, Japan

S11-P005 **Visible Light Photochemical Behavior of Titania/Bismuth Ferrite Heterostructures**
A. Schultz, P. A. Salvador, G. S. Rohrer; Carnegie Mellon University, USA

S11-P006 **Photocatalytic Activities of Various Pentavalent Bismuthates under Visible Light Irradiation**
T. Takei[1], R. Haramoto[1], Y. Yonesaki[1], N. Kumada[1], N. Kinomura[1], T. Mano[2], S. Nishimoto[2], Y. Kameshima[2], M. Miyake[2]; [1]University of Yamanashi, Japan, [2]Okayama University, Japan

S11-P007 **Photocatalytic Decomposition of Methylene Blue, Phenol and Carboxylic Acid by Using Carbon-coated Titania Particles**
T. Tsumura, K. Sogabe, T. Tsubone, M. Toyoda; Oita University, Japan

S11-P008 **The Photocatalytic Activity of Kikuma Roof-Tiles Coated By Titania**
S. Okano[1], M. Matsuura[1], M. Kan[2], T. Tanaka[1]; [1]Ehime University, Japan, [2]Ceramics Technology Center of Ehime, Japan

S11-P009 **Synthesis of Anatase TiO_2 Single Crystals with Exposed {101} and {001} Facets and Their Photocatalytic Activities for Hydrogen Evolution**
Q. D. Truong, M. Kobayashi, H. Kato, M. Kakihana; Tohoku University, Japan

S11-P010 **Influence of Oxygen Ions on the Structure of Titanium Oxide Thin Films Prepared by Plasma Deposition Technique**
S. Narksitipan[1], S. Thongtem[2]; [1]Maejo University, Thailand, [2]Chiang Mai University, Thailand

S11-P011 **NOx Reduction Activity over Phosphate-supported Platinum Catalysts with Hydrogen Under Oxygen Rich Condition**
M. Itoh, M. Takehara, M. Saito, K. Machida; Osaka University, Japan

Symposium 12: Porous Ceramics for Environmental Protection and Advanced Industries

Main Organizers
- Yuji Iwamoto, Nagoya Institute of Technology, Japan
- Paolo Colombo, Universita di Padova, Italy

Co-Organizers
- Joerg Adler, Fraunhofer IKTS, Germany
- Yoshinobu Fujishiro, AIST, Japan
- Manabu Fukushima, AIST, Japan
- Shinji Kawasaki, NGK Insulators, Ltd., Japan
- Young-Wook Kim, University of Seoul, Korea
- Zoltan Lences, Slovak Academy of Sciences, Slovakia
- Takayuki Nagano, Japan Fine Ceramics Center (JFCC), Japan
- Kazushige Ohno, IBIDEN CO., LTD., Japan
- Kiyoshi Okada, Tokyo Inst. Technology, Japan
- Alek Pyzik, Dow Chemical, USA
- Michael Scheffler, Brandenburgische Technische Universitaet Cottbus, Germany
- Sujanto Widjaja, Corning Incorporated, USA
- Yongjie Yan, Shanghai Institute of Ceramics, CAS, China
- Jian-Feng Yang, Xi'an Jiaotong University, China

Oral Session

Monday, November 15

Room: 1102

14:15 - 16:00: Development of Porous Ceramics for Environmental Protection

Chairs: Paolo Colombo (University of Padova, Italy) and Yuji Iwamoto (Nagoya Institute of Technology, Japan)

14:15 - 14:45
S12-001 **Hierarchically Porous Monoliths for CO_2 Capture (Invited)**
L. Bergström, F. Akhtar, A. Ojuva, N. Hedin; Stockholm University, Sweden

14:45 - 15:00
S12-002 **Generation of Microbubbles by Lotus Ceramics and Their Application for CO_2 Sequestration**
C. Popa[1], K. Katsumata[1], T. Isobe[1], N. Matsushita[1], A. Nakajima[1], T. Kurata[2], K. Okada[1]; [1]Tokyo Institute of Technology, Japan, [2]Kurata Refractory Co. Ltd, Japan

15:00 - 15:30
S12-003 **Ceramic Based Water Filters for Bacteria and Virus Filtration (Invited)**
T. Graule, B. Michen; Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland

16:00 - 16:15 **Break**

16:15 - 18:00: Advanced Processing Methods for Porous Ceramics I. -Novel Wet Forms and Freeze Drying Technologies-

Chairs: Paolo Colombo (University of Padova, Italy) and Yuji Iwamoto (Nagoya Institute of Technology, Japan)

16:15 - 16:45
S12-004 **Particle-Stabilized Foams, Emulsions and Capsules: from Porous Ceramics to Mesoporous Hollow Microcapsules (Invited)**
U. T. Gonzenbach, L. J. Gauckler; ETH Zürich, Switzerland

Symposium 12

16:45 - 17:15
S12-005 **The Microstructure Controllable Ceramics Prepared via a Freeze Casting Processing (Invited)**
Y.-P. Zeng, K. Zuo, Z. Yuan, L. Ren, D. Jiang; Chinese Academy of Sciences, China

17:15 - 17:45
S12-006 **Super Thermal Insulating Oxide Cryogels Prepared by Vacuum Freeze Drying (Invited)**
L. Miao[1], L. F. Su[1], S. Tanemura[2]; [1]Chinese Academy of Sciences, China, [2]Japan Fine Ceramics Centre, Japan

17:45 - 18:00
S12-007 **Preparation of Surfactant-free Core-Shell Poly(Lactic Acid)/Calcium Phosphate Hybrid Particles and Their Drug Release Characteristics**
T. Kuno[1,2], F. Nagata[2], K. Hirao[1,2], T. Ohji[2], K. Kato[2]; [1]Nagoya Institute of Technology, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

Tuesday, November 16

Room: 1102

9:00 - 10:30: Advanced Processing Methods for Porous Ceramics II. -Polymer Precursor Route-

Chair: Young-Wook Kim (University of Seoul, Korea)

9:00 - 9:30
S12-008 **Nanostructured Non Oxide Mesoporous Ceramics from Preceramic Polymers (Invited)**
P. Miele, O. Majoulet, J. Alauzun, S. Bernard, X.-B. Yan; Université Lyon, France

9:30 - 10:00
S12-009 **Polymer-Derived Ceramics with Tunable Micro- and Mesoporous Structure for Hydrogen Separation (Invited)**
R. M. Prasad, M. Seifollahi, A. Gurlo, R. Riedel; Technische Universitaet Darmstadt, Germany

10:00 - 10:15
S12-010 **Borosilicate Glass Foams with Optimized Properties**
J. P. G. Llerenas[1], C. Ohl[2], M. Kappa[2], V. Wilker[1], F. Scheffler[2], M. Scheffler[2]; [1]Brandenburg Technical University Cottbus, Germany, [2]Otto-von-Guericke University, Germany

10:15 - 10:30
S12-011 **Fabrication of Ceramics with Hierarchical Porosity from Preceramic Polymers**
P. Colombo[1,2], C. Vakifahmetoglu[1], J. Woltersdorf[2], E. Pippel[2]; [1]University of Padova, Italy, [2]Max-Planck-Institut für Mikrostrukturphysik, Germany

10:30 - 10:45 **Break**

10:45 - 11:45: Advanced Processing Methods for Porous Ceramics III. -Novel Hierachical Porous Structure Controlling Technoligies-

Chair: Philippe Miele (Institut Européen des Membrances de Montpellier, France)

10:45 - 11:15
S12-012 **New Processing Strategies for Polymer-Derived Cellular/Microcellular Ceramics (Invited)**
Y.-W. Kim; The University of Seoul, Korea

11:15 - 11:45
S12-013 **Hierarchical Films with Multiscale and Multi-shape Pores: Nanoboxes, Nanospheres and Mesopores (Invited)**
P. Innocenzi, T. Kidchob, D. Marongiu, L. Malfatti; Università di Sassari, Italy

14:15 - 16:00: Meso and Macroproous Structure Contorlling Technologies

Chairs: Plinio Innocenzi (University of Sassari, Italy) and
Thomas Graule (Empa, Swiss Federal Laboratories for Materials Science and Technology, Switzerland)

14:15 - 14:45
S12-014 **Superplastically Foaming Method to Make Closed Pores Inclusive Porous Ceramics (Invited)**
A. Kishimoto, H. Hayashi; Okayama University, Japan

14:45 - 15:00
S12-015 **Porous Alumina-based Ceramics with Large Open Porosity Fabricated by Polymethylmethacrylate Template Method**
K. Kamitani, T. Hyodo, Y. Shimizu, M. Egashira; Nagasaki University, Japan

15:00 - 15:15
S12-016 **Piercing Interconnected Pore Channels by *in-situ* Polymerization and Graphitization in a Molded Ceramic Monolith**
X. Chen[1], L. Hong[1,2], X. Tai[1]; [1]National University of Singapore, Singapore, [2]Institute of Materials Research and Engineering, Singapore

15:15 - 15:30
S12-017 **Towards Ceramic 3DOM-Materials as High-Temperature Reflective Coatings and Thermophotovoltaic Emitters**
R. Kubrin, H. S. Lee, A. Petrov, R. Janssen, G. A. Schneider, J. Bachmann, K. Nielsch, M. Eich; Hamburg University of Technology, Germany

15:30 - 15:45
S12-018 **Gelcasting of Ceramic Particle Stabilised Foams**
G. V. Franks[1,2], C. Tallon[1,2], C. Chuanuwatanakul[1]; [1]University of Melbourne, Australia, [2]Defence Materials Technology Centre, Australia

15:45 - 16:00
S12-019 **Thermal Conductivity of Silica Aerogels under Vacuum Condition**
K. Kugimiya[1], M. Ogawa, H. Matsubara; Japan Fine Ceramics Center, Japan

Wednesday, November 17

Room: 1102

9:00 - 10:30: Porous SiC Ceramics I. -Porous Structure Cnotrolling-

Chair: Yuping Zeng (Shanghai Institute of Ceramics, Chinese Academy of Sciences, China)

9:00 - 9:30
S12-020 **Advances in Cellular Silicon Carbide Ceramics for Burner Application (Invited)**
H. Klemm, A. Fuessel, J. Adler, D. Boettge, M. Jahn, F. Marschallek; Fraunhofer Institute for Ceramic Technologies and Systems IKTS, Germany

9:30 - 10:00
S12-021 **Microstructural Control of Macro-Cellular Porous Ceramic Through Gelation-Freezing Approach (Invited)**
M. Fukushima, Y. Yoshizawa; National Institute of Advanced Industrial Science and Technology, Japan

10:00 - 10:15
S12-022 **Investigation on the Microstructure and Permeability Property of Porous SiC Ceramics**
I.-H. Song[1], H.-D. Kim[1], Y.-W. Kim[2]; [1]Korea Institute of Materials Science, Korea, [2]University of Seoul, Korea

Symposium 12

10:15 - 10:30
S12-023 **Synthesize of High Surface Area Mesoporous SiC by Using SBA-15/Polyacrylamide Nanocomposite Precursor**
A. A. Nourbakhsh[1], M. Hemmatiyan[1], R. J. Kalbasi[1], F. Golestani-Fard[2]; [1]Islamic Azad University, Iran, [2]Iran university of Science and Technology, Iran

10:30 - 10:45 **Break**

10:45 - 12:00: Porous SiC Ceramics II. -Practical Application Technologies for DPFs-

Chairs: Hagen Kemm (Fraunhofer IKTS Dresden, Germany) and
Manabu Fukushima (National Institute of Advanced Industrial Science and Technology, Japan)

10:45 - 11:15
S12-024 **Diesel Particulate Filter for Diesel Emission Control (Invited)**
M. Makino, Y. Miyairi; NGK Insulators, Ltd., Japan

11:15 - 11:30
S12-025 **Regeneration of Diesel Particulate Filters (DPF): Experimental and Numerical Thermomechanical Simulations**
A. Beurotte, M. Boussuge, L. Jeanfaivre, S. Gailliègue; MINES ParisTech, France

11:30 - 11:45
S12-026 **Damage of Diesel Particulate Filter during Regeneration - Experimentation and Modeling**
G. Latouchent[1,2], P. Darcy[1], N. Schmitt[2,3], A. Benallal[2]; [1]RENAULT SAS, France, [2]LMT-Cachan, France, [3]Université Paris-Est Créteil Val-de-Marne, France

11:45 - 12:00
S12-027 **Recovery of SiC Powder from Sintered DPF Using Hydrothermal Treatment Combined with Ball-Milling Technique**
Z. Liu[1], R. Sasai[2], H. Itoh[1]; [1]Nagoya University, Japan, [2]Shimane University, Japan

13:15 - 14:00: Porous SiC Ceramics III. -Thermo-Mechanical Properties-

Chairs: Hagen Kemm (Fraunhofer IKTS Dresden, Germany) and
Manabu Fukushima (National Institute of Advanced Industrial Science and Technology, Japan)

13:15 - 13:30
S12-028 **Fabrication of Porous Silicon Carbide Ceramics Based on In–Situ Grain Growth**
K. Yoshida, C-C. See, M. Imai, T. Yano; Tokyo Institute of Technology, Japan

13:30 - 13:45
S12-029 **Processing and Properties of Mullite-Bonded Porous SiC Ceramics**
B. V. M. Kumar[1], Y.-H. Choi[1], Y.-W. Kim[1], I.-S. Han[2], S.-K. Woo[2]; [1]The University of Seoul, Korea, [2]Korea Institute of Energy Research, Korea

13:45 - 14:00
S12-030 **Effect of Fillers on Microstructure and Strength of Porous Silicon Carbide**
J.-H. Eom[1], B. V. M. Kumar[1], Y.-W. Kim[1], I.-H. Song[2], H.-D. Kim[2]; [1]University of Seoul, Korea, [2]Korea Institute of Materials Science, Korea

14:00 - 15:00: Ordered-Nanoporous Materials-Zeolites and Related Materials-

Chair: Lennart Bergstom (Stockholm University, Sweden)

14:00 - 14:30
S12-031 **Microporoous Ceramic Membranes: A Key for Energy Saving of Chemical Processes (Invited)**
M. Matsukata; Waseda University, Japan

14:30 - 14:45
S12-032 **Hydrothermal Synthesis of Zeolite SSZ-24 from Silica Gel as Precursors Using Inorganic Structure Direction Agent**
H. Imaizumi, H. Maeda, E. H. Ishida; Tohoku University, Japan

14:45 - 15:00
S12-033 **Thermokinetic Analysis of the Rehydration Process of Calcined MgAl-Layered Double Hydroxides; Effect of the Mg/Al Molar Ratio**
H. Pfeiffer[1], E. Lima[1], J. S. Valente[2]; [1]Universidad Nacional Autónoma de México, Mexico, [2]Instituto Mexicano del Petróleo, Mexico

15:00 - 15:15 **Break**

15:15 - 17:00: Environmental Friendly Fabrication of Porous Ceramics -Use of Natural Resources or Industrial Waste-

Chairs: Michael Scheffler (Otto-von-Guericke University Magdeburg, Germany) and Urs T. Gonzenbach (ETH Zurich, Switzerland)

15:15 - 15:30
S12-034 **Formation of the Microstructure of TiO_2 Film through Anodic Oxidation of Titanium**
Y. Yokogawa, T. Yasuki, T. Hirotomi, A. Nakamura, I. Kishida; Osaka City University, Japan

15:30 - 15:45
S12-035 **Porosity Control and Thermal Conductivity of Geopolymer Foams**
J. Henon, A. Alzina, J. Absi, D. Smith, S. Rossignol; Ecole Nationale Supérieure de Céramique Industrielle, France

15:45 - 16:00
S12-036 **Inorganic Foam Durability in Contact with Various Solutions**
E. Prud'homme, P. Michaud, S. Rossignol; Ecole Nationale Supérieure de Céramique Industrielle, France

16:00 - 16:15
S12-037 **Application of Mechano-Chemical Process for Fabrication of Porous Ceramics from Waste Materials**
A. Eiad-ua, T. Shirai, H. Watanabe, M. Fuji, K. Orito, M. Takahashi; Nagoya Institute of Technology, Japan

16:15 - 16:30
S12-038 **The Use of Hydroxyapatite and Cement Kiln Dust Mixture in Removal of Lead: The Chemical-Mechanical Aspect in Preparation of New Packed Bed**
E. Velayi, A. Salem; Sahand University of Technology, Iran

16:30 - 16:45
S12-039 **Fabrication and Characterization of Porous Alumina from Platelets Using a Solution Treatment with TEOS**
S. Hashimoto[1], Y. Ito, H. Hirano[2], S. Honda[1], Y. Iwamoto[1]; [1]Nagoya Institute of Technology, Japan, [2]Towa Refractory Engineering, Co., Ltd., Japan

16:45 - 17:00
S12-040 **Fabrication of Activated Rice Husk Charcoal by Slip Casting as a Hybrid Material for Water Filter Aid**
T. Tuaprakone, N. Wongphaet, T. Wasanapiarnpong; Chulalongkorn University, Thailand

Thursday, November 18

Room: 1102

9:00 - 10:30: Microporous Ceramic Membranes for Gas Separation

Chair: Chen Xinwei (National University of Singapore, Singapore)

9:00 - 9:30
S12-041 **Nano/Subnano-Tuning of Silica Networks for Gas Separation by Sol-Gel Processing (Invited)**
T. Tsuru; Hiroshima Univesrity, Japan

Symposium 12

9:30 - 10:00

S12-042 **Development of Micro-porous Ceramics as Hydrogen Separation Membranes (Invited)**
K. Miyajima[1,2], T. Eda[1], A. Masuda[1], B. N. Nair[1], S. Nagaya[2], Y. Iwamoto[3]; [1]Noritake Co., Limited, Japan, [2]Chubu Electric Power Co., Inc., Japan, [3]Nagoya Institute of Technology, Japan

10:00 - 10:15

S12-043 **High Temperature Gas Separation through Silica Hybrid Membranes Prepared by Using a Counter Diffusion CVD Method**
M. Nomura, K. Monma, E. Matsuyama, S. Kimura, R. Miyake, K. Utsumi; Shibaura Institute of Technology, Japan

10:15 - 10:30

S12-044 **Pore Size Control of Amorphous Silica Membrane by Counter Diffusion Chemical Vapor Deposition**
T. Nagano, K. Sato, S. Suda; Japan Fine Ceramics Center, Japan

10:30 - 10:45 **Break**

10:45 - 11:45: Catalysis, and Catalysis Supports

Chairs: Aleksander Gulo (Technische Universitaet Darmstadt, Germany) and Toshinori Tsuru (Hiroshima University, Japan)

10:45 - 11:00

S12-045 **Catalytic Activity for Combustion Reaction of Ru Catalyst Supported on Hexagonal Rare Earth-Iron Mixed Oxide for Combustion Reaction**
S. Hosokawa, Y. Masuda, M. Inoue; Kyoto University, Japan

11:00 - 11:15

S12-046 **Sintering-induced Activation Pd/CeO_2 for CO Oxidation: Metallic Pd Nanoparticles Formed by Pd-Ce-O Interaction**
M. Machida, S. Hinokuma, H. Fujii, M. Okamoto, K. Ikeue; Kumamoto University, Japan

11:15 - 11:30

S12-047 **Thermal Degradation Behavior of V_2O_5-WO_3-TiO_2 Monolithic Catalysts for High Temperature SCR by NH_3**
B. Shin[1], M. Shin[1,2], H. Lee[1], D. Shin[3], W. Min[4]; [1]Pusan National University, Korea, [2]Korea Testing Laboratory, Korea, [3]Gyeongsang National University, Korea, [4]Korea University, Korea

11:30 - 11:45

S12-048 **Effect of Baria on γ-Al_2O_3 Catalyst Sintering Behavior, Phase Transition and Catalytic Performance**
H. Safaee, C. Falamaki, M. Sohrabi; Amirkabir University of Technology, Iran

13:15 - 15:00: Development and Application of Porous Ceramics

Chairs: Akira Kishimoto (Okayama University, Japan) and Takayuki Nagano (Japan Fine Ceramics Center, Japan)

13:15 - 13:30

S12-049 **Theoretical and Experimental Study on Densification of Ceramics with Bimodal Pore Distribution**
J. Lu, J. Ma; Nanyang Technological University, Singapore

13:30 - 13:45

S12-050 **Porous $MgTi_2O_5$-Based Composites with Highly-Controled Pore-Size Distribution: Processing and Mercury Intrusion/Extrusion Analysis**
Y. Suzuki[1], M. Morimoto[2]; [1]Kyoto University, Japan, [2]Sysmex Corporation, Japan

13:45 - 14:00

S12-051 **Fabrication and Mechanical Properties of Porous Composites of Al_2O_3 and ZrO_2 by Microwave Heating**
T. Umeda[1], S. Hashimoto[1], K. Hirao[2], S. Honda[1], Y. Iwamoto[1]; [1]Nagoya Institute of Technology, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

14:00 - 14:15

S12-052 **Estimation of Properties and Thermal Shock Resistance of Fine Porous Alumina**
S. Honda[1], T. Senda[1], N. Nishihara[1], H. Watanabe[2], K. Miyajima[1,2], S. Hashimoto[1], Y. Iwamoto[1]; Nagoya Instutute of Technology, Japan, Noritake Co., Limited, Japan

14:15 - 14:30

S12-053 **Development of the Advanced Ceramic Electrochemical Reactors for Micro SOFC Technology**
Y. Fujishiro, T. Suzuki, T. Yamaguchi, K. Hamamoto, M. Awano; National Institute of Advanced Industrial Science and Technology, Japan

14:30 - 14:45

S12-054 **Large Size and Lightweight Precision Plates**
K. Ishizaki[1], A. Takata[2], K. Matsumaru[1]; [1]Nagaoka University of Technology, Japan, [2]Nano-TEM Co., Ltd., Japan

14:45 - 15:00

S12-055 **Silica Containing High Porous Alumina Ceramic**
S. Ruta, S. Visvaldis, Z. Ieva; Riga Technical University, Latvia

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 - 14:00

S12-P001 **Solvent-Free Syntheses of Supermicroporous Silica Templated by Short-Chain Surfactants**
H. Watanabe[1], K. Fujikata[2], Y. Oaki[2], H. Imai[2]; [1]Tokyo Metropolitan Industrial Research Institute, Japan, [2]Keio University, Japan

S12-P002 **Dip-Coating Mesoporous TiO_2 Thin Films with 3D-Hexagonal Mesostructure**
Z. Feng, U. Wang, H. Zhou; Xiamen University, China

S12-P003 **Hydroxyapatite/zitconium Oxide Porous Bioceramics with Graded Structure Prepared by Freeze Casting Process**
K. Zuo, Y. Zeng, D. Jiang; Shanghai Institute of Ceramics, Chinese Academy of Science, China

S12-P004 **Preparation of Polymer-Derived Ordered Mesoporous SiliconBoron and Silicon Aluminum CarboNitride**
O. Majoulet[1], S. Bernard[1], Y. Sugahara[2], P. Miele[1]; [1]Laboratoire des Multimatériaux et Interfaces, France, [2]Waseda University, Japan

S12-P005 **A Novel Precursor Composed of Polycarbosilane and Palladium (II) Acetate for a SiC-based Gas Separation Membrane**
A. Idesaki, M. Sugimoto, M. Yoshikawa; Japan Atomic Energy Agency, Japan

S12-P006 **In Situ Reaction Processing of Porous Silicon Carbide Membrane Supports**
Y.-H. Choi[1], Y.-W. Kim[1], S.-K. Woo[2], I.-S. Han[2]; [1]The University of Seoul, Korea, [2]Korea Institute of Energy Research, Korea

S12-P007 **Effect of Additives on Porosity and Flexural Strength of Porous Self-Bonded Silicon Carbide**
K.-Y. Lim, Y.-W. Kim; The University of Seoul, Korea

S12-P008 **Extrusion of Porous SiC Honeycomb Ceramics for Solar Power Receiver and Its Properties**
D.-W. Seo[1], I.-S. Han[1], S. Kim[1], K.-S. hong[1], Y.-J. Hang[1], S.-D. Kim[1], S.-K. Woo[1], B.-K. Jang[2]; [1]Korea Institute of Energy Research, Korea, [2]National Institute for Materials Science, Japan

Symposium 12

S12-P009 Microstructure and Mechanical Properties of Biomorphic SiC Materials Obtained from Enzymatically Treated Red Oak Wood
J. Ramirez-Rico[1], C. Torres-Raya[1], J. Martinez-Fernandez[1], R. Wimmer[2]; [1]Universidad de Sevilla, Spain, [2]Wood K Plus, Austria

S12-P010 Structural Analysis of Metal Doped-Amorphous Silica Membrane for Separation of Hydrogen
A. Mori[1], K. Hataya[1,2], S. Honda[1], Y. Iwamoto[1]; [1]Nagoya Institute of Technology, Japan, [2]Japan Fine Ceramics Center,Japan

S12-P011 Preparation and Hydrogen Adsorption Properties of Nickel Doped Mesoporous Silica
Y. Yamamoto, N. Nawa, S. Nishimoto, Y. Kameshima, M. Miyake; Okayama University, Japan

S12-P012 Preparation and Property of Porous Ceramic Filter for CO_2 Gas Separation
M. Shimizu, T. Isobe, A. Ooyama, A. Nakajima; Tokyo Institute of Technology, Japan

S12-P013 CO_2 Absorption Behavior of α-$LiFeO_2$ Coated on Ceramic Foam
I. Yanase, K. Otsuka, H. Kobayashi; Saitama University, Japan

S12-P014 Removal of Harmful Organic Compounds Using SiO_2-TiO_2 Sol/Montmorillonite Composites
R. Yoshioka, S. Nishimoto, Y. Kameshima, M. Miyake; Okayama University, Japan

S12-P015 Orientation Control of Mordenite Zeolite Using Magnetic Field
C. Matsunaga[1,2], T. Uchikoshi[2], T. S. Suzuki[2], Y. Sakka[2], M. Matsuda[1]; [1]Kumamoto University, Japan, [2]National Institute for Materials Science, Japan

S12-P016 Ethanol Steam Reforming Reaction Brought by Zeolite Y with Transition Metals
H. Inokawa, S. Nishimoto, Y. Kameshima, M. Miyake; Okayama University, Japan

S12-P017 Oxygen Storage Capacity and Microstucture of Ceria-zirconia Catalyst from Coprecipitation Method
K. Kimura, M. Hattori, M. Ozawa, M. Haneda; Nagoya Institute of Technology, Japan

S12-P018 Development of Pore Distribution and Microstructure of Thermally Stabilized Alumina Catalytic Support
T. Noguchi, Y. Nishio, M. Haneda, M. Ozawa; Nagoya Institute of Technology, Japan

S12-P019 Synthesis and Surface Property of Catalytic CuO by Several Precipitraion Processes
R. Kato, M. Haneda, M. Ozawa; Nagoya Institute of Technology, Japan

S12-P020 Sintering Behavior of Pt Particle in Alumina-supported Catalyst
T. Wtanabe, K. Ryoji, M. Haneda, M. Ozawa; Nagoya Institute of Technology, Japan

S12-P021 Pulsed Arc Plasma Processing of Uniform Metal Nanoparticles Dispersed on Porous Ceramic Materials
S. Hinokuma, M. Okamoto, E. Ando, K. Ikeue, M. Machida; Kumamoto University, Japan

S12-P022 Mercury Adsorption Using Granular Porous Gold
C. S. Oh, Y. Kim; Kwangwoon University, Korea

S12-P023 High Porosity Alumina as Matrix Material for Composites of Al-Mg Alloys
L. A. Gömze[1], L. N. Gömze[2], Á. Egész[1], F. Ojima[3]; [1]University of Miskolc, Hungary, [2]IGREX Engineering Service Ltd., Hungary., [3]Nagaoka University of Technology, Japan

S12-P024 Research on the Preparation and Property of Steel Slag-Flyash Porous Glass Ceramics
L. Baowei[1], J. Xiaolin[1,2], Z. Xuefeng[1]; [1]Inner Mongolia University of Science and Technology, China, [2]Zhengzhou University, China

S12-P025 Fabrication of Porous Ceramics Utilized Waste Molding Sand and Its Water Suction Characteristics
H. Itoh[1], J. Takahashi[2], M. Kobayashi[1], N. Fujiwara[3], M. Kishi[4]; [1]Kitami Institute of Technology, Japan, [2]Hokkaido University, Japan, [3]Hokkaido Railway Company, Japan, [4]Hokkaido Institute of Technology, Japan

Symposium 13: Ceramics for Medicine, Biotechnology and Biomimetics

Main Organizers
- Chikara Ohtsuki, Nagoya University, Japan
- Roger Narayan, University of North Carolina, USA
- Sung-Baek Cho, KIGAM, Korea

Co-Organizers
- Mamoru Aizawa, Meji University, Japan
- Besim Ben-Nissan, University of Technology, Sydney, Australia
- Serena M. Best, University of Cambridge, UK
- Yasuhiko Hirayama, HOYA, Japan
- Koji Ioku, Tohoku University, Japan
- Kunio Ishikawa, Kyushu University, Japan
- Fumiaki Miyaji, JMM, Japan
- Akiyoshi Osaka, Okayama University, Japan
- Sang-Hoon Rhee, Seoul National University, Korea
- Takashi Shigematsu, Olympus Terumo Biomaterials Corp., Japan
- Min Wang, The University of Hong Kong, Hong Kong

Oral Session

Monday, November 15

Room: 1202

15:00 - 16:00: Synthesis of Novel Bioceramics

Chairs: Toshiki Miyazaki (Kyushu Institute of Technology, Japan) and Tsutomu Furuzono (Kinki University, Japan)

15:00 - 15:15
S13-001 **In vitro Apatite-forming Ability of Hydrogels Derived from Sodium Carboxymethylcellulose**
M.-Y. Koh[1], Y. Morita[2], T. Miyazaki[2], C. Ohtsuki[1]; [1]Nagoya University, Japan, [2]Kyusyu Institute of Technology, Japan

15:15 - 15:30
S13-002 **Iron Nanoparticles-Encapsulating Silica Glass Microspheres for Arterial Embolization Hyperthermia**
Z. Li, M. Kawashita; Tohoku University, Japan

15:30 - 15:45
S13-003 **Fabrication of Silicon Nitride Ceramics for Dental Core Material Application**
R. Wananuruksawong[1], S. Jinawath[1], P. Padipatvuthikul[2], T. Wasanapiarnpong[1]; [1]Chulalongkorn University, Thailand, [2]Srinakharinwirot University, Thailand

15:45 - 16:00
S13-004 **Fabrication of Functionally Graded ZTA Ceramics Using a Novel Combination of Freeze Casting with Electrophoretic Deposition and Vacuum Casting**
A. Preiss[1], B. Su[1], S. Collins[2], P. Ellison[2]; [1]University of Bristol, UK, [2]Corin Ltd, UK

16:00 - 16:15 **Break**

Symposium 13

16:15 - 17:15: Organic Modification of Bioceramics

Chairs: Yuya Oaki (Keio University, Japan) and
Roger. J. Narayan (University of North Carolina and North Carolina State University, USA)

16:15 - 16:30
S13-005 **Two Photon Polymerization of Organically-Modified Ceramic Materials for Medical Applications**
R. J. Narayan[1], S. D. Gittard[1], A. Doraiswamy[1], A. Ovsianikov[2], B. N. Chichkov[2]; [1]University of North Carolina and North Carolina State University, USA, [2]Laser Zentrum Hannover, Germany

16:30 - 16:45
S13-006 **Effetcs of Monocarboxylic Acid Addition on Crystallization of Calcium Phosphate in a Hydrogel Matrix**
T. Yokoi[1], M. Kawashita[2], C. Ohtsuki[1]; [1]Nagoya University, Japan, [2]Tohoku University, Japan

16:45 - 17:00
S13-007 **Design of Bioactive Organic-inorganic Hybrid Materials with Self-setting Ability**
T. Miyazaki, S. Machida, Y. Morita, E. Ishida; Kyushu Institute of Technology, Japan

17:00 - 17:15
S13-008 **Preparation of Silicate and Calcium Ion-Releasable Bead-Shaped Siloxane-Containing Vaterite / Poly (L-Lactic Acid) Hybrids**
J. Nakamura, S. Lin, G. Poologasundarampillai, A. Obata, T. Kasuga; Nagoya Institute of Technology, Japan

17:15 - 17:30: Novel Design of Bioceramics

Chairs: Yuya Oaki (Keio University, Japan) and
Roger. J. Narayan (University of North Carolina and North Carolina State University, USA)

17:15 - 17:30
S13-009 **Synthesis of Microporous Materials and their VSC Adsorption Properties**
Y. Yokogawa, H. Morikawa, M. Sakanishi, H. Utaka, A. Nakamura, I. Kishida; Osaka City University, Japan

17:30 - 18:00: Novel Design of Bioceramics

Chairs: Mamoru Aizawa (Meiji University, Japan)

17:30 - 18:00
S13-010 **Bioceramics for Skeletal Repair (Invited)**
S. Best; University of Cambridge, UK

Tuesday, November 16

Room: 1202

9:00 - 10:00: Bioactive Materials

Chairs: Ayako Oyane (National Institute of Advanced Industrial Science and Technology, Japan) and
Junzo Tanaka (Tokyo Institute of Technology, Japan)

9:00 - 9:15
S13-011 **Chemical Regeneration of Enamel for Tooth Repair**
Z. Feng, U. Liaop, L. He, R. Xie, Y. Ma, S. Li; Xiamen University, China

9:15 - 9:30
S13-012 **In Vitro Study of Carbonated Hydroxyapatite Blocks Prepared by Double-Step Hydrothermal Method**
S. P. Parthiban, I. Y. Kim, K. Kikuta, C. Ohtsuki; Nagoya University, Japan

9:30 - 9:45

S13-013 **Effects of Kind and pH of Acid Solution on Apatite-forming Ability of Titanium Metal Subjected to Acid and Heat Treatments**

S. Yamaguchi[1], D. K. Pattanayak[1], H. Takadama[1], T. Matsushita[1], T. Nakamura[2], T. Kokubo[1]; [1]Chubu University, Japan, [2]Kyoto University, Japan

9:45 - 10:00

S13-014 **Surface Nitriding Dependence on Apatite Formation of Biomedical Titanium Metal in a Simulated Body Fluid**

M. Hashimoto, K. Kashiwagi, S. Kitaoka; Japan Fine Ceramics Center, Japan

10:00 - 10:30: Bioactive Materials

Chairs: Yoshiyuki Yokogawa (Osaka City University, Japan) and Hong-Tao Sun (National Institute for Materials Science, Japan)

10:00 - 10:15

S13-015 **Apatite Formation in Hanks' Solution on Dicalcium Silicate Films Prepared by Chemical Vapor Depostion**

S. Nath, R. Tu, T. Goto; Tohoku University, Japan

10:15 - 10:30

S13-016 **Electrospun Sol-Gel Organic/Bioactive Silica Hybrid Materials for Bone Regeneration**

G. Poologasundarampillai[1], J. R. Jones[2], T. Kasuga[1]; [1]Nagoya Institute of Technology, Japan, [2]Imperial College London, UK

10:30 - 10:45 **Break**

10:45 - 11:45: Processing of Designed Bioceramics

Chairs: Masakazu Kawashita (Tohoku University, Japan) and Zude Feng (Xiamen University, China)

10:45 - 11:15

S13-017 **Effect of Microstructure of Artificial Bone on Regeneration of Critical Tibia Defect (Invited)**

M. Kikuchi[1], Y. Koyama[2], K. Edamura[3], K. Takakuda[2], S. Tanaka[3]; [1]National Institute for Materials Science, Japan, [2]Tokyo Medical and Dental University, Japan, [3]Nihon University, Japan

11:15 - 11:30

S13-018 **Liquid-phase Laser Processing for Area-specific Apatite Coating on Ethylene-vinyl Alcohol Copolymer**

A. Oyane, I. Sakamaki, K. Kawaguchi, N. Koshizaki; National Institute of Advanced Industrial Science and Technology, Japan

11:30 - 11:45

S13-019 **On the Influence of the HA-SiO_2 Ratio on Properties of Laser Surface Sintered (LSS) Bioceramic Implants**

E. Kivitz[1], J. Zhang[2], J. G. Heinrich[1]; [1]Clausthal University of Technology, Germany, [2]Shanghai Institute of Ceramics, China

14:15 - 15:15: Bioceramics Toward Innovative Functions

Chairs: Masanori Kikuchi (National Institute for Materials Science, Japan) and Christian Bonhomme (UPMC CNRS, France)

14:15 - 14:30

S13-020 **Highly Fluorescent Bismuth Doped Aluminosilicate/Silica Core-Shell Nanoparticles for Multifunctional Near Infrared Bioimaging**

H.-T. Sun[1], Y. Sakka[1], N. Shirahata[1], M. Fujii[2], Z. Bai[2]; [1]National Institute for Materials Science, Japan, [2]Kobe University, Japan

Symposium 13

14:30 - 14:45
S13-021 **Interaction of Specific Proteins and Peptides with Hydroxyapatite in Aqueous Solution**
S. Ono, T. Tsuji, S. Hirakura, T. Kobayashi, Y. Oaki, H. Imai; Keio University, Japan

14:45 - 15:00
S13-022 **Protein Adsorption and Subsequent Fibroblasts Adhesion on Hydroxyapatite Nanocrystals**
M. Tagaya[1], T. Ikoma[1], T. Takemura[2], S. Migita[2], N. Ogawa[1], N. Hanagata[2], T. Yoshioka[1], J. Tanaka[1]; [1]Tokyo Institute of Technology, Japan, [2]National Institute for Materials Science, Japan

15:00 - 15:15
S13-023 ***In Vitro* Dissolution Behavior of Drug from Apatite Cement Made from Amorphous Calcium Phosphate**
T. Uchino[1,2], F. Ishii[2], M. Otsuka[2]; [1]Meiji University, Japan, [2]Musashino University, Japan

15:15 - 16:00: Bioceramics Toward Innovative Functions

Chairs: Atsushi Nakahira (Osaka Prefecture University, Japan) and
Juergen G. Heinrich (Clausthal University of Technology, Germany)

15:15 - 15:30
S13-024 **CS/NaCMC/n-HA Polyelectrolyte Complex Membrane: Electrostatic Assembling Preparation and in Vitro Degradation**
H. Jiang, Y. Zuo, Y. Li; Sichuan University, China

15:30 - 15:45
S13-025 **Biodegradable Properties of the Electrospun Fibers Incorporated into Calcium Phosphate Cement for Bone Regeneration**
Y. Zuo[1,2], F. Yang[2], J. Li[1], A. Sun[1], J. G. C. Wolke[2], J. A. Jansen[2], Y. Li[1]; [1]Sichuan University, China, [2]Radboud University Nijmegen Medical Center, The Netherlands

15:45 - 16:00
S13-026 **Towards a Better Structural Characterization of Substituted Hydroxyapatites**
Y. Wang[1], N. Nassif[1], L. Bonhomme[1], C. Bonhomme[1], F. Babonneau[1], J.-M. Nedelec[2], S. Gomes[2], G. Renaudin[2], E. Jallot[2]; [1]Collège de France, France, [2]Clermont University, France

16:00 - 16:15 **Break**

16:15 - 17:30: Bioceramics Characterization

Chairs: Akiyoshi Osaka (Okayama University, Japan) and S. Rattanachan (Suranaree University of Technology, Thailand)

16:15 - 16:45
S13-027 **NMR Techniques Applied to the Characterization of Ca-C Proximities in Calcium Phosphate Derived Materials (Invited)**
C. Bonhomme[1], D. Laurencin[2], C. Gervais[1], F. Pourpoint[1], F. Babonneau[1]; [1]Université P. et M. Curie, CNRS, France, [2]Institut Charles Gerhardt, France

16:45 - 17:00
S13-028 **Structural Reliability of Gelatin-Containing Calcium Silicate Bone Grafts for Load-Bearing Applications**
C.-K. Wei, S-J. Ding; Chung-Shan Medical University, Taiwan

17:00 - 17:15
S13-029 **Residual Stress in Microplasma Sprayed Hydroxyapatite Coating**
A. Dey, A. K. Mukhopadhyay; Central Glass and Ceramic Reserach Institute, India

17:15 - 17:30
S13-030 **Novel Synthesis of Yttrium Phosphate Microspheres for Radioembolization of Cancer**
M. Kawashita, N. Matsui, Z. Li; Tohoku University, Japan

Wednesday, November 17

Room: 1202

9:00 - 9:45: Functionalized Bioceramics

Chairs: Hidero Unuma (Yamagata University, Japan) and Basu Bikramjit (Indian Institute of Technology Kanpur, India)

9:00 - 9:15

S13-031 **Catalytic Performance of Subtilisin Immobilized without Covalently Attachment on Surface-functionalized Mesoporous Silica Materials**

K. Murai[1,2], T. Nonoyama[3], F. Ando[1], K. Kato[2]; [1]Chubu University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Nagoya Institute of Technology, Japan

9:15 - 9:30

S13-032 **Relationship Between Particle Morphology and Protein Adsorption of Hydroxyapatite**

Y. Yamauchi[1,2], F. Nagata[2], K. Ohta[1], K. Kato[2]; [1]Mie University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

9:30 - 9:45

S13-033 **Physiochemical Properties and Biocompatibility of Gusuibu-Loaded Calcium Silicate Bone Substitute**

C.-C. Ho, S.-J. Ding; Chung-Shan Medical University, Taiwan

9:45 - 10:30: Functionalized Bioceramics

Chairs: Toshihiro Kasuga (Nagoya Institute of Technology, Japan) and Yubao Li (Sichuan University, China)

9:45 - 10:00

S13-034 **Sol-gel Synthesis of Osteocompatible Chitosan-silicate Hydrogel**

Y. Shirosaki, M. Hirai, S. Hayakawa, A. Osaka; Okayama University, Japan

10:00 - 10:15

S13-035 **The Influence of the Polarized Titania Coating on MG63 Cells**

A. Nagai[1], Y. Yamazaki[1,2], M. Chuhan[1], Y. Tsutsumi[1], T. Hanawa[1], T. Toyama[2], K. Yamashita[1]; [1]Tokyo Medical & Dental University, Japan, [2]Nihon University, Japan

10:15 - 10:30

S13-036 **Electrically Stimulated Enhancement of Cell Proliferation on Ferroelectric-Hydroxyapatite Composites**

A. K. Dubey, S. D. Gupta, B. Basu; Indian Institute of Technology, India

10:30 - 10:45 **Break**

10:45 - 11:15: Biological Properties of Ceramics

Chair: Chikara Ohtsuki (Nagoya University, Japan)

10:45 - 11:15

S13-037 **Biological Properties of Nanoporous Ceramic Membranes (President - Designated)**

R. J. Narayan[1,5], S. P. Adiga[2], M. J. Pellin[3], L. A. Curtiss[3], S. Stafslien[4], B. Chisholm[4], N. A. Monteiro-Riviere[1,5], R. L. Brigmon[6], J. W. Elam[7]; [1]University of North Carolina, USA, [2]Eastman Kodak Company, USA, [3]Argonne National Laboratory, USA, [4]North Dakota State University, USA, [5]North Carolina State University, USA, [6]Savannah River National Laboratory, USA, [7]Argonne National Laboratory, USA

Symposium 13

11:15 - 11:45: Biological Properties of Ceramics

Chairs: Fumio Watari (Hokkaido University, Japan) and Shinn-Jyh Ding (Chung-Shan Medical University, Taiwan)

11:15 - 11:30

S13-038 **Next Generation Antibacterial Hydroxyapatite Coating with Silver**

I. Noda[1], Y. Ando[1,2], H. Miyamoto[2], Y. Yonekura[2], T. Shimazaki[2], M. Miyazaki[2], M. Mawatari[2], T. Hotokebuchi[2]; [1]Japan Medical Materials Corporation, Japan, [2]Saga University, Japan

11:30 - 11:45

S13-039 **Influence of Moderate Intensity Static Magnetic Field Exposure on Bacterial Cell Adhesion and Viability on Biomaterial Surface**

N. Saha, N. V. S. Krishna, B. Basu; IIT Kanpur, India

Thursday, November 18

Room: 1202

9:15 - 10:15: Cell-Material Interactions

Chairs: Kunio Ishikawa (Kyushu University, Japan) and Bo Su (University of Bristol, UK)

9:15 - 9:30

S13-040 **Reconstruction of Tissue-Engineered Bone through Combination of an Apatite-Fiber Scaffold, a Radial-Flow Bioreactor and Rat Bone Marrow Cells**

J. Fukasawa[1], Y. Nakada[1], H. Maehashi[2], T. Matsuura[2], M. Aizawa[1]; [1]Meiji University, Japan, [2]Jikei University Hospital, Japan

9:30 - 9:45

S13-041 **Preparation of Scaffold Materials Releasing Silicon and Calcium Ions for Bone Reconstruction**

A. Obata[1,2], S. Yamada[1], T. Kasuga[1], J. R. Jones[2]; [1]Nagoya Institute of Technology, Japan, [2]Imperial College London, UK

9:45 - 10:00

S13-042 **Polarized Hydroxyapatite in Silk Fibroin Film Increases in vitro Organization of Endothelial Cells into Capillry-like Networks**

M. Nakamura[1], T. Soya[1,2], K. Hashimoto[2], A. Nagai[1], K. Yamashita[1]; [1]Tokyo Medical and Dental University, Japan, [2]Chiba Institute of Technology, Japan

10:00 - 10:15

S13-043 **Dynamic Liver Cell Behavior to Carbon Nanotubes Observed by Time Lapse Microscopy Method**

S. Itoh[1], T. Taira[2], Y. Yawaka[1], F. Watari[1]; [1]Hokkaido University, Japan, [2]Primary Cell Co.,LTD., Japan

10:15 - 10:45 **Break**

10:45 - 11:15: Applications of Bioceramics

Chair: Serena Best (University of Cambridge, UK)

10:45 - 11:15

S13-044 **Macroporous Calcium Phosphate Cement: Setting Reaction and Initial Mechanical Strength (Invited)**

K. Ishikawa[1], T. K. Pham[1], K. Tsuru[1], S. Matsuya[2], M. Maruta[1], M. Nakagawa[1]; [1]Kyushu University, Japan, [2]Fukuoka Dental College, Japan

11:15 - 12:00: Applications of Bioceramics

Chairs: Kimihiro Yamashita (Tokyo Medical and Dental University, Japan) and Yubao Li (Sichuan University, China)

11:15 - 11:30

S13-045 Biological Evaluation of Biodegradable β-tricalcium Phosphate / Poly-(L-lactic acid) Hybrids
Y. Shigemitsu[1], Y. Iwamoto[1], N. Sugiyama[2], Y. Takeoka[2], M. Rikukawa[2], M. Matsumoto[3], H. Morisue[3], Y. Toyama[3], M. Aizawa[1]; [1]Meiji University, Japan, [2]Sophia University, Japan, [3]Keio University, Japan

11:30 - 11:45

S13-046 Preparation and Characterization of PET/Gelatin/HA Composites for the Space-Making Membrane in Guided Bone Regeneration
H. Unuma[1], N. Matsuoka[1], N. Tanaka[1], T. Kawai[1], Y. Matsushima[1], T. Furusawa[2], M. Sato[2]; [1]Yamagata University, Japan, [2]Tohoku University, Japan

11:45 - 12:00

S13-047 Blood Compatibility and Tissue Response of Methylsiloxane Coating
Y. Hoshikawa[1,3], T. Onoki[2,3], M. Akao[3], T. Akatsu[3], Y. Tanabe[4], E. Yasuda[3]; [1]Tohoku University, Japan, [2]Osaka Prefecture University, Japan, [3]Tokyo Institute of Technology, Japan, [4]Nagoya University, Japan

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 - 14:00

S13-P001 Fabrication of Porous Flexible Calcium-Deficient Apatite - Alginate Composite and its Evaluation
S. Tsukuda, T. Umeda, S. Koda, K. Itatani; Sophia University, Tokyo, Japan

S13-P002 Production of Hydroxyapatite from Waste Mussel Shells
M. I. Jones, H. Barakat, D. Patterson; Univeristy of Auckland, New Zealand

S13-P003 Processing of Highly Porous Calcium Phosphates for Use in Bioreactor Constructions
A. Finoli[1,2], N. Ostrowski[1], E. Schmelzer[2], J. Gerlach[2], I. Nettlship[1,2]; [1]University of Pittsburgh, USA, [2]McGowan Institute of Regenerative Medicine, USA

S13-P004 Effects of Organic Additives on the Morphology of Various Calcium Phosphates Prepared via Solution and Emulsion Methods
I. Kimura[1], T. Wei[1], Y. Kikushima[1], R. E. Riman[2], T. Akazawa[3]; [1]Niigata University, Japan, [2]Rutgers, The State University of New Jersey, USA, [3]Hokkaido Industrial Research Institute, Japan

S13-P005 Synthesis and Characterization of Hydroxyapatite with Mg Additive
Y. Nishio[1], M. Sato[2], H. Murata[3], K. Matsunaga[3], A. Nakahira[1,2]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan, [3]Kyoto University, Japan

S13-P006 Effects of Ethanol Addition on Formation of Hydroxyapatite thourgh Hydrothermal Treatment of Dicalcim Phosphate Dihydrate
T. Goto[1], M. Kamitakahara[2], I. Y. Kim[1], C. Ohtsuki[1]; [1]Nagoya University, Japan, [2]Tohoku University, Japan

S13-P007 Influence of MgO Doping in Hot-pressed Tricalcium Phosphate
W. Acchar[1], C. A. A. Cairo[2], A. C. S. da Costa[1]; [1]Federal University of Rio Grande do Norte, Brazil, [2]Centro Tecnico Aeroespacial, Brasil

S13-P008 Calcium Phosphate Bone Pastes with Controlled Setting Behavior
N. Fujisawa[1], I. Suzuki[2], C. Ohtsuki[2], T. Kawai[1], Y. Matsushima[1], H. Unuma[1]; [1]Yamagata University, Japan, [2]Nagoya University, Japan

S13-P009 Injectability Behavior of Chitosan/Calcium Phosphate Cement
S. Rattanachan, N. Suppakarn, C. Lorprayoon; Suranaree University of Technology, Thailand

Symposium 13

S13-P010 Development of a Strontium- containing Calcium Sulfate Bone Cement
H. Bandegani[1], S. Hesaraki[1], M. Alimadadi[1], M. Khorami[1], R. T. Ardakani[2]; [1]Marterials & Energy Research Center, Iran, [2]Sharif University of Technology, Iran

S13-P011 Study of Bioglass Ceramics in the SiO_2 – CaO – P_2O_5 – Fe_2O_3 System
C. Birsan, C. Ghitulica, E. Andronescu, V. Boghiu, M. Birsan; University Politehnica of Bucharest, Romania

S13-P012 Zirconia Reinforced Glass – Ceramic Materials
M. Birsan, C. Ghitulica, E. Andronescu, E. Dinu, C. Ionita; University Politehnica of Bucharest, Romania

S13-P013 Bonding and Properties of Metal/Calcium Phosphate by Modified Hydrothermal Processing
S. Yamamoto[1], A. Nakahira[1,2]; [1]Osaka Prefectural University, Japan, [2]Tohoku University, Japan

S13-P014 Novel Nanophase Ferroelectric Composites for Orthopedic Implant Applications
A. K. Dubey[1], B. Basu[1], K. Balani[1], R. Guo[2], A. S. Bhalla[2]; [1]Indian Institute of Technology, India, [2]University of Texas as San Antonio, USA

S13-P015 Preparation and Characterization of Mesoporous Bioactive Glass –Polycaprolactone Nanofibrous Matrix using electrospinning process
F.-Y. Hsu, H.-M. Lin, Y.-H. Lin; National Taiwan Ocean University, Taiwan

S13-P016 Fabrication of Novel Biofilm Containing Calcium Phosphate Nano-Particles / Cellulose Derivative and its Evaluation.
A. Shimizu[1], T. Umeda[1], A. Isogai[2], T. Saito[2], S. Koda[1], K. Itatani[1]; [1]Sophia University, Japan, [2]The University of Tokyo, Japan

S13-P017 Porous Composite Mineral-Polymer Materials for Bone Tissue Engineering.
A. Y. Fedotov, N. V. Bakunova, V. V. Smirnov, V. S. Komlev, I. V. Fadeeva, S. M. Barinov; RAS, Russia

S13-P018 Fabrication of Hydroxyapatite/Chitosan-Gelatin Nanocomposite Bone Tissue Engineering Scaffold
E. Beman[1], S. Hesaraki, M. Alizadeh[1], M. Kavousi[2]; [1]Material and Energy Istitute Center, Iran, [2]Tarbiat Modarres University, Iran

S13-P019 Hydroxyapatite and Chitosan Composite Coating on Titanium by a Double-layered Capsule Hydrothermal Hot-pressing
T. Onoki[1], T. Kuno[1], Y. Hasegawa[1], A. Nakahira[1,2]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan

S13-P020 Preparation of Apatite Coating on Zirconia Ceramics utilizing Vaterite-Particle-Implanted Poly(L-lactic acid) Layer
Y. Kogo, G. Poologasundarampillai, A. Obata, T. Kasuga; Nagoya Institute of Technology, Japan

S13-P021 Fabrication of Hydroxyapatite/Chitosan Nanocomposite Bone Tissue Engineering Scaffold
E. Beman, S. Hesaraki; Material and Energy Istitute Center, Iran

S13-P022 Preparation of Novel Multifunctionalized Hybride Nanoparticles Using Organosilica Particles Technology
M. Nakamura, K. Hayashi, K. Ishimura; University of Tokushima Graduate School of Medical Sciences, Japan

S13-P023 Synthesis of Protein-incorporated Hydroxyapatite Particles for Biomedical Applications
P. K-hasuwan[1], N. Kuanchertchoo[2], P. Supaphol[1]; [1]Chulalongkorn University, Thailand, [2]Ramkhamhaeng University, Thailand

S13-P024 Ceramic Bracket Fabricated by Aerosol Deposition for Dental Braces
J. W. Lee[1], D. W. Lee[1], H. J. Kim[1], Y. N. Kim[2], J. K. Song[2], S. M. Nam[1]; [1]Kwangwoon University, Korea, [2]Korea Testing Laboratory, Korea

S13-P025 Production of Super Paramagnetic Nano Spheres for Hyperthermic Therapy of Surface (Skin) Cancer Diseases
Z. Kovziridze[1], J. G. Heinrich[2], R. Goerke[2], G. Mamniashvili[3], Z. Chachkhiani[1], N. Mitskevich[1], D. Donadze[1]; [1]Georgian Technical University, Georgia, [2]Clausthal University of Technology, Germany, [3]E. Andronikashvili Institute of Physics, Georgia

S13-P026 **Effect of SiO_2 on Sintering Behavior and Biodegradability of Calcium Sulfate**
H.-W. Wu, S.-T. Kuo, W.-H. Tuan; National Taiwan University, Taiwan

S13-P027 **Effect of Fe Doping on the Properties of HAp**
M. Sato[1], H. Murata[2], K. Matsunaga[2], A. Nakahira[1,3]; [1]Tohoku University, Japan, [2]Kyoto University, Japan, [3]Osaka Prefecture University, Japan

S13-P028 **Effect Of B_2O_3 and LiO_2 Addition on The Sintering Behaviour of Apatite-Nano Sized Mullite Glass-Ceramics System**
R. Sehhat[1], S. M. Beidokhti[1], J. Jvadpour[1], B. E. Yekta[1], A. Yousefi[2], A. Moatti[1]; [1]Iran University of Science and Technology, Iran, [2]Par Tavus Research Institue, Iran

S13-P029 **Bioactivity and Mechanical Properties of White Portland Cement Paste with Calcium Chloride**
P. Torkittikul, A. Chaipanich; Chiang Mai University, Thailand

S13-P030 **Evaluation of Mechanical and Wear Properties Related to Microstructure of Zirconia Toughened Alumina Ceramic for Artificial Joint**
J. Ikeda[1,2], T. Nakanishi[1], F. Miyaji[1], Y. Sawae[2], T. Murakami[2]; [1]Japan Medical Materials Corp., Japan, [2]Kyushu University, Japan

S13-P031 **Some Studies on Comparative Mechanical Behaviour of HAp and HAp-Alumina Bioceramic Composite**
A. Srivastav; IFTM, India

S13-P032 **Effect of Bi_2O_3 on Physicochemical Properties of Dicalcium Silicate Cements**
T.-Y. Chiang, C.-K. Wei, S.-J. Ding; Chung-Shan Medical University, Taiwan

S13-P033 **Application of Flake Shaped Glass for Dental Materials**
M. Uo[1], A. Sasaki[1], F. Watari[1], J. Ino[2]; [1]Hokkaido University, Japan, [2]Nippon Sheet Glass, Japan

S13-P034 **Effects of UV-irradiation on Induction Time for Apatite Nucleation and Growth on Nano-crystalline TiO_2 Layer**
S. Nakai[1], K. Uetsuki[1,2], Y. Shirosaki[1], S. Hayakawa[1], A. Osaka[1]; [1]Okayama University, Japan, [2]Nakashima Medical Co., Ltd., Japan

S13-P035 **Environmentally Friendly Growth and Characterization of Highly Crystalline and Idiomorphic Hydroxyapatite Crystals**
S. Mori[1], S. Suzuki[1], K. Teshima[1], S. H. Lee[1], K. Yubuta[2], T. Shishido[2], S. Oishi[1]; [1]Shinshu University, Japan, [2]Tohoku University, Japan

S13-P036 **Scratch Test of Simulated Body Fluid-derived Hydroxyapatite Film on Biomedical Titanium Substrates**
T. Hayami[1], H. Nishikawa[1], M. Kusunoki[1], K. Matsumura[2], S. Hontsu[1], M. Ohmasa[1], T. Sawai[1]; [1]Kinki University, Japan, [2]Kyoto University, Japan

S13-P037 **Effect of Different Physiological Solutions on Bioactivity of Calcium Silicate Cement**
M.-Y. Shie[1], H.-C. Chang[1], S.-J. Ding[2]; [1]National Cheng-Kung University, Taiwan, [2]Chung-Shan Medical University, Taiwan

S13-P038 **Three-Dimensionally Ordered Macroporous Bioactive Glasses for Drug Delivery**
U. Boonyang[1], A. Stein[2]; [1]Walailak University, Thailand, [2]University of Minnesota, USA

S13-P039 **Morphological Control of Peptide-Apatite Hybrids Obtained from Biomimetic Mineralization**
Y. Uchida[1], T. Matsubara[2], T. Sato[2], M. Hashizume[1]; [1]Tokyo University of Science, Japan, [2]Keio University, Japan

S13-P040 **Effect of Substitution of Soda with Lithia on Surface Reactivity of 45S5 Bioglass**
M. Khorami[1], S. Hesaraki[1], A. Behnam[1], H. Bandegani[1], S. Farhangdoust[2]; [1]Materials and Energy Research Center, Iran, [2]Sharif University of Technology, Iran

S13-P041 **Structure and Degradation Behaviour of Calcium Phosphate Glasses**
A. M. B. Silva, J. M. M. Oliveira, R. N. Correia, M. H. V. Fernandes; University of Aveiro, Portugal

Symposium 13

S13-P042 Structure and *In Vitro* Degradation Behavior of Borate-containing Apatite
S. Hayakawa[1], S. Barheine[2], C. Jaeger[2], Y. Shirosaki[1], A. Osaka[1]; [1]Okayama University, Japan, [2]BAM Federal Institute for Materials Research and Testing, Germany

S13-P043 Enhanced *in Vitro* Degradability of Hydroxyapatite Particles with Orthosilicate Ion-substituted Lattice
Y. Hama, Y. Shirosaki, S. Hayakawa, A. Osaka; Okayama University, Japan

S13-P044 Cefazolin-containing Sponge Pad in Combination with a Fibroblast Growth Factor-2-apatite Composite Layer to Resist Bacterial Infection
A. Oyane[1], H. Mutsuzaki[2,3], Y. Sogo[1], X. Wang[1], S. Kugimiya[4], S. Hitomi[5], K. Ozeki[4], M. Sakane[3], N. Ochiai[3], A. Ito[1]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Ibaraki Prefectural University of Health Sciences Hospital, Japan, [3]University of Tsukuba, Japan, [4]Ibaraki University, Japan, [5]University of Tsukuba, Japan

S13-P045 Porous Hydroxyapatite Bioceramic Scaffolds for Drug Delivery and Bone Regeneration
D. Loca, J. Locs, K. Salma, G. Salms, J. Gulbis, L. Berzina-Cimdina; Riga Technical University, Latvia

S13-P046 Protein Adsorption Properties on Titanium with and without Calcium Titanate-coating
J. Ueta, N. Ohtsu, T. Kanno, K. Tada, J. Horiuchi; Kitami Institute of Technology, Japan

S13-P047 Protein Release Parameters Estimated with a Flow System on Zinc-containing Apatite.
M. Inaba[1], T. Kanno[1], K. Tada[1], J. Horiuchi[1], T. Akazawa[2], K. Itabashi[2]; [1]Kitami Institute of Technology, Japan, [2]Hokkaido Industrial Research Institute, Japan

S13-P048 Intercalation of Pharmaceutically Active Compound into Layered Double Hydroxides
S. Kanamori, N. Akaji, T. Arakawa; Kinki University, Japan

S13-P049 Biocompatibility Evaluation of Hydroxyapatite-coated Titanium Fiber Mesh Scaffold
H. Nishikawa[1], A. Ametani[2], Y. Hashimoto[3], M. Kusunoki[1], T. Hayami[1], S. Hontsu[1]; [1]Kinki University, Japan, [2]Hi-Lex Corporation, Japan, [3]Osaka Dental University, Japan

S13-P050 Feasibility of $CaSO_4$-based Ceramics as Novel Biomaterials
S-T. Kuo[1], H-W. Wu[1], W-H. Tuan[1], Y-Y. Tsai[2]; [1]National Taiwan University, Taiwan, [2]National Taipei University of Technology, Taiwan

S13-P051 Cellular Evaluation on Beta-tricalcium Phosphate Ceramics Doped with Vanadate Ions
K. Ohsashi[1], R. Miyamoto[1], N. Matsumoto[2], H. Shibata[1], K. Yoshida[3], K. Hashimoto[1]; [1]Chiba Institute of Technology, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Tokyo Institute of Technology, Japan

S13-P052 Relationship between Bone Absorption and Protein Adsorption on β-tricalcium Phosphate Doped with Sodium Ions
R. Miyamoto[1], H. Shibata[1], K. Yoshida[2], K. Hashimoto[1]; [1]Chiba Institute of Technology, Japan, [2]Tokyo Institute of Technology, Japan

S13-P053 Cell Test on β-tricalcium Phosphate Doped with Manganese (II) Ions
A. Ozawa[1], R. Miyamoto[1], H. Shibata[1], K. Yoshida[2], K. Hashimoto[1]; [1]Graduate School Chiba Institute of Technology, Japan, [2]Tokyo Institute of Technology, Japan

S13-P054 Effect of Aluminosilicate Nanotubes, Imogolite Scaffold on Osteoblastic Proliferation and Differentiation
K. Ishikawa, S. Abe, F. Watari, Y. Yawaka; Hokkaido University, Japan

S13-P055 Internal Distribution of Micro-/Nano-sized Inorganic Particles and Its Cytocoxisity
S. Abe, N. Iwadera, K. Ishikawa, A. Hyono, S. Itoh, T. Akasaka, M. Uo, Y. Yawaka, Y. Kuboki, T. Yonezawa, F. Watari; Hokkaido University, Japan

S13-P056 In vivo Evaluation of Chelate-setting Calcium-phosphate Cements with Various Bioresorbability Using Rabbit Model

T. Konishi[1], S. Takahashi[1,2], M. Mizumoto[1], S. Sato[1,3], M. Honda[1], K. Kida[2], Y. Horiguchi[3], K. Oribe[3], H. Morisue[4], Y. Toyama[4], M. Matsumoto[1,4], M. Aizawa[1,2]; [1]Kanagawa Academy of Science and Technology, Japan, [2]Meiji University, Japan, [3]SHOWA IKA KOHGYO co., ltd., Japan, [4]Keio University, Japan

S13-P057 Bone Implant of Electrically Polarized Ceramics

W. Wang[1], S. Itoh[2], A. Nagai, K. Yamashita; [1]Tokyo Medical and Dental University, Japan, [2]International University of Health and Welfare, Japan

S13-P058 Sono-Catalytic Production of Angiogenesis Factors from Cells Incubated on TiO_2-Coated Nanocomposite

T. Furuzono[1], X. Liu[1], N. Nitta[2], A. Kaya[2], T. Yamane[2], M. Okada[1]; [1]Kinki University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

Symposium 14

Symposium 14: Advanced Engineering Ceramics and Composites

Incorporating the 4th International Symposium on Advanced Ceramics (organized by JSPS 124th Committee (Advanced Ceramics)) and the 4th International Symposium on the Science of Engineering Ceramics (organized by CerSJ Engineering Ceramics Division).

4th International Symposium on Advanced Ceramics (ISAC-4)

Main Organizers
- Takashi Goto, Tohoku University, Japan
- Yi-Bing Cheng, Monash Univ., Australia
- Takashi Akatsu, Tokyo Institute of Technology, Japan

Co-Organizers
- Zhengyi Fu, Wuhan University of Technology, China
- Stuart Hampshire, Univ. of Limerick, Ireland
- Juergen G. Heinrich, Clausthal Univ. of Technology, Germany
- Michael J. Hoffmann, Karlsruhe Institute of Technology, Germany
- Dongliang Jiang, Shanghai Institute of Ceramics, China
- Yutaka Kagawa, Univ. of Tokyo, Japan
- Hai-Doo Kim, KIMS, Korea
- Do Kyung Kim, KAIST, Korea
- Tomaz Kosmac, Josef Stefan Institute, Slovenia
- Walter Krenkel, Univ. of Bayreuth, Germany
- Michael Khor, Nanyang Technological University, Singapore
- Hua-Tay Lin, Oak Ridge National Lab, USA
- Hasan Mandal, Anadolu Univ., Turkey
- Lalit Mohan Manocha, Sardar Patel University, India
- Keiji Matsuhiro, NGK Insulators, Ltd., Japan
- Hideo Takahashi, Asahi Glass Co., Ltd., Japan
- Hidehiko Tanaka, NIMS, Japan
- Junichi Tatami, Yokohama National Univ., Japan
- Jitendra P. Singh, U.S. Army International Technology Center - Pacific
- Mrityunjay Singh, OAI, NASA Glenn Research Center, USA
- Vijay K. Srivastava, Banaras Hindu University, India
- Guo-Jun Zhang, Shanghai Institute of Ceramics, China
- Yu Zhou, Harbin Institute of Technology, Harbin, China

Oral Session

Monday, November 15

Room: 1006

14:15 - 16:00: Mechanical Properties of Ceramics

Chair: Fumihiro Wakai (Tokyo Institute of Technology, Japan)

14:15 - 14:45
S14-001 **Mechanical Reliability Assessment of Brittle Ceramic Components (Invited)**
H.-T. Lin; Oak Ridge National Laboratory, USA

14:45 - 15:15
S14-002 **Processing-green structure-microstructure-property Relationship in Ceramics (Invited)**
K. Uematsu, S. Tanaka; Nagaoka University of Technology, Japan

15:15 - 15:45
S14-003 **Strengthening Mechanism of High-Strength Reaction-sintered Silicon Carbide (Invited)**
S. Suyama, Y. Itoh; Toshiba Corporation, Japan

15:45 - 16:00
S14-004 **Proof Test of Hybrid Shrink Fits with Ceramic Hub**
M. Wagner, H. Binz; University of Stuttgart, Germany

16:00 - 16:15 **Break**

16:15 - 18:30: Mechanical Properties of Ceramics

Chairs: Hua-Tay Lin (Oak Ridge National Laboratory, USA) and Keizo Uematsu (Nagaoka University of Technology, Japan)

16:15 - 16:45
S14-005 **Impact Fracture Behavior of Ceramics and of PE-Fiber-Reinforced Mortars (Invited)**
Y. Tanabe[1], M. Yamada[1], M. Kunieda[1], K. Sekine[2], T. Kumazawa[2]; [1]Nagoya University, Japan, [2]Mino Ceramic Co. Ltd., Japan

16:45 - 17:00
S14-006 **Nanofractography of Ceramics by Scanning Probe Microscopy (Invited)**
J. Tatami, T. Wakihara, K. Komeya; Yokohama National University, Japan

17:00 - 17:15
S14-007 **Effect of Nonlinear Viscoelasiticity on Indentation Load Relaxation (Invited)**
T. Akatsu, Y. Akimoto, Y. Shinoda, F. Wakai; Tokyo Institute of Technology, Japan

17:15 - 17:30
S14-008 **Indentation Fracture (IF) Test for Silicon Nitride Bearing Balls as an International Standard Method**
H. Miyazaki, Y. Yoshizawa, T. Ohji; National Institute of Advanced Industrial Science and Technology, Japan

17:30 - 17:45
S14-009 **Fracto-emission during Unstable Crack Propagation in Ceramic Materials**
T. Shiota, Y. Sato, K. Yasuda; Tokyo Institute of Technology, Japan

17:45 - 18:00
S14-010 **Fracture Behavior of Ultra-Thin Al_2O_3 Layer Coated on Ductile Substrate**
R. T. Doloksaribu, R. Kitazawa, K. Matumura, Y. Kagawa; The University of Tokyo, Japan

18:00 - 18:15
S14-011 **Ballistic Property Testing and Damage Characterization of Metal-Ceramic Interpenetrating Composites for Light Armour Applications**
J. Binner, C. Munnings, R. Higginson; Loughborough University, UK

18:15 - 18:30
S14-012 **Wear Behavior of SiC Ceramics Sintered with Small Amount of Addditives**
B. V. M. Kumar[1], Y.-W. Kim[1], H.-T. Bae[2], D.-S. Lim[2]; [1]The University of Seoul, Korea, [2]Korea University, Korea

Tuesday, November 16

Room: 1006

9:00 - 10:30: Sintering of Ceramics

Chair: Zuhair Munir (University of California, USA)

9:00 - 9:30
S14-013 **Fabrication of Advanced Nanocrystalline Ceramics by Spark Plasma Sintering: Theory and Practice (Invited)**
R. Chaim; Technion - Israel Institute of Technology, Israel

9:30 - 9:45
S14-014 **Structure and Properties of Spark-plasma Sintered TiN-Si_3N_4 Ceramic Nanocomposites Reinforced with Si_3N_4 Nanowires**
A. Ragulya[1], V. Kolesnichenko[1], M. Herrmann[2]; [1]Frantsevich Institute for Problems in Materials Science, Ukraine, [2]Fraunhofer Institute for Ceramic Technologies and Systems, Germany

Symposium 14

9:45 - 10:00
S14-015 **Microstructure Development and Creep Behavior of Alumina/SiC Micro-nanocomposites Obtained by Spark Plasma Sintering or Pressurless Sintering**
M. Jaafar, G. Bonnefont, G. Fantozzi, H. Reveron; MATEIS Insa de Lyon, France

10:00 - 10:15
S14-016 **Densification and Mechanical Properties of Al_2O_3-ZrO_2-CeO_2 Ceramics Prepared by Spark Plasma Sintering**
E. Yilmaz, O. Ormanci, I. Akin, F. Sahin, O. Yucel, G. Goller; Istanbul Technical University, Turkey

10:15 - 10:30
S14-017 **Fabricaion of Alumina-Zirconia Based Laminates by Sequential Centrifugal Gel Casting**
S. Maleksaeedi[1], M. H. Paydar[1], J. Ma[2]; [1]Shiraz University, Iran, [2]Nanyang Technological University, Singapore

10:30 - 10:45 **Break**

10:45 - 11:45: Sintering of Ceramics

Chair: Rachman Chaim (Technion-Israel Institute of Technology, Israel)

10:45 - 11:15
S14-018 **Grain Size Effect in the Electrical Properties of Nanostructured Functional Oxides through Pressure Modification of the Spark Plasma Sintering Method (Invited)**
Z. A. Munir[1], D. Quach[1], S. Kim[1], R. A. D. Souza[2], M. Martin[2]; [1]University of California, USA, [2]RWTH Aachen University, Germany

11:15 - 11:30
S14-019 **Consolidation of Turbostratic Carbon with the Graphitization by SPS and the Mechanical Property**
N. Toyofuku[1], M. Nishimoto[1], Y. Kodera[1], M. Ohyanagi[1], Z. A. Munir[2]; [1]Ryukoku University, Japan, [2]University of California, Davis, USA

11:30 - 11:45
S14-020 **Multi-Stage Spark Plasma Sintering To Develop ZrB_2-18wt%SiC-xwt%$TiSi_2$ Composites with Better Properties**
N. Gupta, K. M. Reddy, K. Pavani, B. Basu; Indian Institute of Technology, India

14:15 - 16:00: Sintering of Ceramics

Chairs: Yoshihiro Hirata (Kagoshima University, Japan) and
Kiyoshi Hirao (National Institute of Advanced Industrial Science and Technology, Japan)

14:15 - 14:45
S14-021 **Ultra-fast Densification of Nano- and Submicro-grain Ceramics (Invited)**
Z. Fu[1], J. Zhang[1], W. Wang[1], H. Wang[1], Y. Wang[1], S. W. Lee[2], K. Niihara[3]; [1]Wuhan University of Technology, China, [2]SunMoon University, Korea, [3]Nagaoka University of Technology, Japan

14:45 - 15:15
S14-022 **GB Phase and Chemical Composition of SiC/Si_3N_4 Nano/Micro-composites – Implications to Mechanical Properties (Invited)**
P. Šajgalík[1], Š. Lojanová[1], M. Hnatko[1], Z. Lenčéš, Z. Chlup[2]; [1]Slovak Academy of Sciences, Slovak Republic, [2]Academy of Sciences of the Czech Republic, Czech Republic

15:15 - 15:45
S14-023 **Mechanical Principles of Sintering in Micro- and Macro-scale (Invited)**
F. Wakai; Tokyo Institute of Technology, Japan

15:45 - 16:00
S14-024 **Synthesis and Characterization of cBN/WCCo Composites Obtained by the Pulse Plasma Sintering (PPS) Method**
A. Michalski, M. Rosiński, M. Płocińska, J. Szawłowski; Warsaw University of Technology, Poland

16:15 - 18:45: Sintering of Ceramics

Chairs: Zhengyi Fu (Wuhan University of Technology, China) and
Yoshio Sakka (National Institute for Materials Science, Japan)

16:15 - 16:45
S14-025 **Development of Highly-efficient Processes for Ceramic Materials Using Microwave Heating (Invited)**
K. Hirao[1], M. Fukushima[1], N. Kondo[1], S. Ohashi[2], S. Hashimoto[2], Y. Iwamoto[2]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Nagoya Institute of Technology, Japan

16:45 - 17:15
S14-026 **Densification, Phases, Microstructures and Mechanical Properties of Liquid Phase-sintered SiC (Invited)**
Y. Hirata, N. Matsunaga, S. Sameshima; Kagoshima University, Japan

17:15 - 17:45
S14-027 **Processing and Characterization of Multi-walled Carbon Nanotube-Alumina Ceramic Matrix Nanocomposites Ceramic Matrix Composites**
M. Estili, A. Kawasaki; Tohoku University, Japan

17:45 - 18:00
S14-028 **Fabrication of Silicon Nitride-Based Nano/nano-Composites Through High Energy Mechanical Milling and Spark Plasma Sintering**
X. Xu[1], J. W. Zhang[1], T. Nishimura[2], N. Hirosaki[2]; [1]University of Science and Technology of China, China, [2]National Institute for Materials Science, Japan

18:00 - 18:15
S14-029 **Accelerated Curing in Early-age of Cement-based Materials by Using Microwave Energy: Constant Powers Processes and Phenomenological Modeling**
N. Makul, B. Chatveera; Thammasat University, Thailand

18:15 - 18:30
S14-030 **Behaviors of Inter-granular Films and Phases During Sintering Process in Liquid-phase-sintered SiC Ceramics**
H. Gu; Shanghai Institute of Ceramics, China

18:30 - 18:45
S14-031 **Relations between Microstructure and Mechanical Properties of Hot-Pressed RBSN with Sintering Additives of La_2O_3-MgO and Lu_2O_3-SiO_2**
J.-W. Ko, S.-H. Lee, Y.-J. Park, H.-D. Kim; Korea Institute of Materials Science, Korea

Wednesday, November 17

Room: 1006

9:00 - 10:30: Superelasticity and Superplasticity of Ceramics

Chair: Takashi Akatsu (Tokyo Institute of Technology, Japan)

9:00 - 9:30
S14-032 **Grain Boundary Sliding and Non-Newtonian Flow in Superplastic Ceramics**
D. Gómez-García[1,2], E. Zapata-Solvas, S. de Bernardi-Martín, A. Domínguez-Rodríguez[1]; [1]University of Seville, Spain, [2]Imperial College, UK

9:30 - 10:00
S14-033 **High-Strain-Rate Superplasticity and Failure in Undoped Tetragonal Zirconia Polycrystals (Y-TZP) (Invited)**
K. Hiraga, H. Yoshida, K. Morita, K. B. Nam, M. Tabuchi; National Institute for Materials Science, Japan

Symposium 14

10:00 - 10:15
S14-034 **Superelastic Deformation Behavior of Glassy Carbon**
Y. Shinoda, T. Akatsu, F. Wakai; Tokyo Institute of Technology, Japan

10:15 - 10:30
S14-035 **Estimation Theory for Random Force Exerted on Grains during Superplastic Deformation of Ceramics**
T. Okmaoto, Y. Yasuda, T. Shiota; Tokyo Institute of Technology, Japan

10:30 - 10:45 **Break**

10:45 - 12:00: Structural Ceramics

Chair: Diego Gómez-García (University of Seville, Spain)

10:45 - 11:15
S14-036 **Thermal Shock Resistance and Plasma Erosion Resistance of ZrO_{2p}(3Y)/BN-SiO_2 Ceramic Composites Targeted for Hall Thruster Channel Walls (Invited)**
Y. Zhou, D. Jia, X. Duan; Harbin Institute of Technology, China

11:15 - 11:30
S14-037 **Response of Al_2O_3/ TiB_2 Ceramic Composite Subjected to High Velocity Impact**
J. Zhang, P. Zhai, Z. Fu; Wuhan University of Technology, China

11:30 - 11:45
S14-038 **Laser Thermal Shock Experiments - Performance and Evaluation on the Basis of Advanced Ceramics**
R. Pulz, B. Rehmer; BAM Federal Institute for Materials Research and Testing, Germany

11:45 - 12:00
S14-039 **High Dense Yttria Doped Mullite without Abnormal Grain Growth**
J. Rocha[1], S. Sugita[1], K. Uematsu[2]; [1]Guanajuato University, Mexico, [2]Nagaoka University of Technology, Japan

13:15 - 15:00 Structural Ceramics

Chairs: Yu Zhou (Institute for Advanced Ceramics, Harbin Institute of Technology, China) and Junichi Hojo (Kyusyu University, Japan)

13:15 - 13:45
S14-040 **Alumina Matrix Nanocomposites for Strength and Wear Resistance by Solid State Precipitation (Invited)**
R. I. Todd, A. Mukhopadhyay; University of Oxford, UK

13:45 - 14:15
S14-041 **Study on Microstructure and Mechanical Properties of Cr_3C_2/Al_2O_3 Nano-Composites Prepared Via MOCVD in Fluidized Bed (Invited)**
H.-T. Lin[1], B.-Z. Liu[2], P. K. Nayak[2], S.-Q. Lu[2], S.-C. Wang[3], J.-L. Huang[2]; [1]Cheng Shiu University, Taiwan, ROC, [2]National Cheng-Kung University, Taiwan, ROC, [3]Southern Taiwan University of Technology, Taiwan, ROC

14:15 - 14:30
S14-042 **Nano-sized Tungsten Carbide Powder Prepared by a Nitride Conversion Method**
S.-K. Sun[1,2], Y.-M. Kan[1], G.-J. Zhang[1]; [1]Shanghai Institute of Ceramics, China, [2]Chinese Academy of Sciences, China

14:30 - 14:45
S14-043 **Improvement in Mechanical Properties of Al_2O_3/WC Composites due to Ca-PSZ Addition**
J. Boonpo, W. Buggakupta, N. Chuankrerkkul; Chulalongkorn University, Thailand

14:45 - 15:00
S14-044 ***In-Situ* Synthesis and Characterization of Alumina Matrix Composites**
Z.-C. Chen[1], S. Nugroho[2], D. Nomoto[1], T. Akao[1], T. Onda[1], A. Kawasaki[3]; [1]Tottori University, Japan, [2]Diponegoro University, Indonesia, [3]Tohoku University, Japan

15:15 - 17:15: Structural Ceramics

Chairs: Richard Todd (University of Oxford, UK) and Jow-Lay Huang (National Cheng Kung University, Taiwan)

15:15 - 15:45
S14-045 **Systematic Evaluation of Ceramics Corrosion toward New Refractory (Invited)**
J. Hojo, S. Sawano, N. Enomoto; Kyushu University, Japan

15:45 - 16:00
S14-046 **Mechanical Properties of Alumina Matrix Composites due to a Combination of Strontium and Calcium Hexaluminates**
W. Buggakupta; Chulalongkorn University, Thailand

16:00 - 16:15
S14-047 **Effect of Dopant Configurations on Oxygen Permeation through Alumina Ceramics under Oxygen Potential Gradients at High Temperatures**
T. Matsudaira, M. Wada, S. Kitaoka; Japan Fine Ceramics Center, Japan

16:15 - 16:30
S14-048 ***In-Situ* Diffraction Study of Thermal Stability and Self-Recovery in Aluminium Titanate**
Z. Oo[1], I. M. Low[2]; [1]Curtin University of Technology, Malaysia, [2]Curtin University of Technology, Australia

16:30 - 16:45
S14-049 **Optimum Surface Roughness of Machinable Glass Ceramic in End-milling**
M. M. Reddy[1], A. Gorin[1], K. A. Abou-El-Hossein[2]; [1]Curtin University of Technology, Malaysia, [2]Nelson Mandela Metropolitan University, South Africa

16:45 - 17:00
S14-050 **Damage Evolution Mechanisms in Alumina Shocked above HEL**
A. K. Mukhopadhyay[1], K. D. Joshi[2], A. Dey[1], R. Chakraborty[1], A. Mandal[1], J. Ghosh[1], S. Bysakh[1], A. Rav[2], S. K. Biswas[1], S. C. Gupta[2]; [1]Central Glass and Ceramic Reserach Institute, India, [2]Bhabha Atomic Research Centre, India

17:00 - 17:15
S14-051 **Comparative Study of Shock Deformed Alumina above HEL by Nanoindentation**
A. K. Mukhopadhyay[1], K. D. Joshi[2], A. Dey[1], R. Chakraborty[1], A. Rav[2], A. Mandal[1], J. Ghosh[1], S. Bysakh[1], S. K. Biswas[1], S. C. Gupta[2]; [1]Central Glass and Ceramic Reserach Institute, India, [2]Bhabha Atomic Research Centre, India

Thursday, November 18

Room: 1006

9:00 - 10:30: Hard and Environmental Barrier Coatings

Chair: Hideaki Matsubara (Japan Fine Ceramics Center, Japan)

9:00 - 9:30
S14-052 **Development of Hard Ceramic Coatings for Extreme Tribological Applications (Invited)**
M. Ürgen[1], A. Erdemir[2], S. Timur[1], K. Kazmanli[1], O. L. Eryilmaz[2]; [1]Istanbul Technical University, Turkey, [2]Argonne National Laboratories, USA

9:30 - 10:00
S14-053 **Residual Stresses and Adhesion Energy Measurements in Thin Tribological Coatings (Invited)**
D. Singh[1], K. Pappacena[1], O. Erylimaz[1], J. L. Routbort[1], G. Chen[2]; [1]Argonne National Laboratory, USA, [2]Ohio University, USA

10:00 - 10:30
S14-054 **Selection and Design of Environmetal Barrier Coatings (Invited)**
Y. Wang; Northwestern Polytechnical University, China

Symposium 14

10:45 - 12:00: Hard and Environmental Barrier Coatings

Chair: Mustafa Ürgen (Istanbul Technical University, Turkey)

10:45 - 11:15

S14-055 **Electron Beam-PVD of Zirconia Based Ceramic Layers for Thermal Barrier Coating (Invited)**

H. Matsubara; Japan Fine Ceramics Center, Japan

11:15 - 11:30

S14-056 **Phase Evolution and Thermo-Physical Properties of $La_2(Zr_xHf_{1-x})_2O_7$ Pyrochlore Systems for Thermal Barrier Coating (TBC)**

S. Kim[1], K. Kwak[1], B.-C. Sim[1], S.-M. Lee[1], Y.-S. Oh[1], B.-K. Jang[2], H.-T. Kim[1]; [1]Korea Institute of Ceramic Engineering and Technology, Korea, [2]National Institute of Materials Science, Japan.

11:30 - 11:45

S14-057 **Environmental Barrier Coatings for Silicon Nitride**

H. F. Chen[1,2], H. Klemm[1], A. Michaelis[1]; [1]Fraunhofer IKTS Dresden, Germany, [2]Shanghai Institute of Ceramics, China

11:45 - 12:00

S14-058 **Optical and Tribological Properties of Silicon Carbide Thin Films Grown by Reactive DC Magnetron Sputtering**

T. Tavsanoglu, E. Baskurt, O. Yucel; Istanbul Technical University, Turkey

13:15 - 14:15: Packaging Technologies for Ceramics

Chair: Akihiko Ito (Institute for Materials Research, Tohoku University, Japan)

13:15 - 13:45

S14-059 **Microelectronics Package Design Using Experimentally-Validated Modeling and Simulation (Invited)**

N. Young, J. Massad, K. Peterson, M. Neilsen, K. Ewsuk; Sandia National Laboratories, USA

13:45 - 14:00

S14-060 **Improving Releasability of Y_2O_3-Based Ceramics from Epoxy Molding Compounds**

S. Kitaoka[1], N. Kawashima[1], K. Nakahira[1], M. Yoshiya[2], S. Miyagawa[3], Y. Noguchi[3], Y. Uetani[4]; [1]Japan Fine Ceramics Center, Japan, [2]Osaka University, Japan, [3]TOWA Corporation, Japan, [4]Nitto Denko Corporation, Japan

14:00 - 14:15

S14-061 ***Ab-initio* Study on Atomic Level Bonding on Trivalent Metal Oxide Surface with Acid/Base with H_2O**

M. Yoshiya[1], S. Kitaoka[2], N. Kawashima[2]; [1]Osaka University, Japan, [2]Japan Fine Ceramics Center, Japan

14:15 - 15:00: Laser Processing of Ceramics Coatings

Chair: Khiam Aik Khor (Nanyang Technological University, Singapore)

14:15 - 14:30

S14-062 **Laser Chemical Vapor Deposition of Oriented Alpha-alumina Coatings (Invited)**

A. Ito[1], T. Kimura[2], T. Goto[1]; [1]Tohoku University, Japan, [2]Japan Fine Ceramics Center, Japan

14:30 - 14:45

S14-063 **Microstructure of $Ce_{1-x}Fe_xO_2$ Films Prepared by Laser Chemical Vapor Deposition**

R. Tu, J. R. V. Garcia, T. Goto; Tohoku University, Japan

14:45 - 15:00

S14-064 **Surface Modification of Thermal Sprayed Thermal Barrier Coatings by Laser Treatment**

V. Akdoğan, B. Demirel, Ö. Keleş, G. Göller, Y. Taptık; Istanbul Technical University, Turkey

15:00 - 15:15 **Break**

15:15 - 16:00: Bioceramics

Chair: Rong Tu (Institute for Materials Research, Tohoku University, Japan)

15:15 - 15:45
S14-065 **Novel Processing for Bioceramics Through Thermal Spray and Spark Plasma Sintering Technologies (Invited)**
K. A. Khor; Nanyang Technological University, Singapore

15:45 - 16:00
S14-066 **Hydroxyapatite Nano-barium-strontium-titaniumoxide Composites**
N. Demirkol[1,2], E. S. Kayali[2], M. Yetmez[3], F. N. Oktar[4,5], S. Agathopoulos[6]; [1]Kocaeli University, Turkey, [2]Istanbul Technical University, Turkey, [3]Karaelmas University, Turkey, [4]Marmara University, Turkey, [5]Marmara University, Turkey, [6]Ioannina University, Greece

Monday, November 15

Room: 1007

14:15 - 16:00: Ultra High Temperature Ceramics

Chair: Hidehiko Tanaka (National Institute for Materials Science, Japan)

14:15 - 14:45
S14-067 **Synthesis of Nano Structured Carbides via Templated Sol-Gel Processes (President-Designated)**
Y.-B. Cheng; Monash University, Australia

14:45 - 15:15
S14-068 **High Temperature Stability of ZrB_2 Based Ultra High Temperature Ceramics (Invited)**
G.-J. Zhang; Shanghai Institute of Ceramics, China

15:15 - 15:30
S14-069 **Processing of Ultra High Temperature Ceramic – Carbon Fibre Composites**
J. Binner[1], B. Vaidhyanathan[1], A. Paul[1], S. Venugopal[1], A. Heaton[2], P. Brown[2]; [1]Loughborough University, UK, [2]Defence Science and Technology Laboratory, UK

15:30 - 15:45
S14-070 **Hafnium Carbide and Silicon Carbide Coatings on C Substrates**
A. Allemand[1,2], O. Szwedek[1,2], Y. L. Petitcorps[1], N. Teneze[2], P. David[2]; [1]Université de Bordeaux, France, [2]CEA-Centre du Ripault-DMAT, France

15:45 - 16:00
S14-071 **Processing and Properties of ZrB_2-SiC Ceramics Using Polycarbosilane**
S. Kim[1], J.-M. Chae[1,2], S.-M. Lee[1], Y.-S. Oh[1], H.-T. Kim[1], S. Nahm[2]; [1]Korea Institute of Ceramic Engineering and Technology, Korea, [2]Korea University, Korea

16:00 - 16:15 **Break**

Symposium 14

16:15 - 18:30: Ultra High Temperature Ceramics

Chairs: Yi-Bing Cheng (Monash University, Australia) and Guo-Jun Zhang (Shanhai Institute of Ceramics, China)

16:15 - 16:30

S14-072 **Formation of Tough Interlocking Microstructure in ZrB_2-SiC Based Ultra High Temperature Ceramics by Pressureless Sintering**

J. Zou[1,2], G.-J. Zhang[1]; [1]Shanghai Institute of Ceramics, China, [2]Graduate School of Chinese Academy of Sciences, China

16:30 - 16:45

S14-073 **Highly Textured HfB_2-SiC Based Ultra High Temperature Ceramics with Anisotropic Properties**

D.-W. Ni[1,2], G.-J. Zhang[1], Y. Sakka[3]; [1]Shanghai Institute of Ceramics, China, [2]Graduate School of Chinese Academy of Sciences, China, [3]National Institute for Materials Science, Japan

16:45 - 17:00

S14-074 **Oxidation Behavior of ZrB_2-SiC and ZrB_2-ZrC Composites**

I. Akin, F. Sahin, O. Yucel, G. Goller; Istanbul Technical University, Turkey

17:00 - 17:15

S14-075 **Evaluation of the Oxidation Behaviour of ZrB_2-SiC at Elevated Temperatures**

A. Momozawa[1], Y. Kubota[2], T. Yoshinaka[3], K. Komurasaki[4], T. Goto[5], H. Hatta[6]; [1]Tokyo City University, Japan, [2]Tokyo University of Science, Japan, [3]Japan Aerospace Exploration Agency, Japan, [4]The University of Tokyo, Japan, [5]Tohoku University, Japan, [6]Japan Aerospace Exploration Agency, Japan

17:15 - 17:30

S14-076 **Accurate Quantitative Evaluation of Active Oxidation Rate of SiC under Elevated Temperatures**

Y. Kubota[1], T. Yoshinaka[2], H. Hatta[2], T. Goto[3], Y. Kogo[1]; [1]Tokyo University of Science, Japan, [2]Japan Aerospace Exploration Agency, Japan, [3]Tohoku University, Japan

17:30 - 17:45

S14-077 **Passive Oxidation and Oxidation Transition of CVD-SiC under High Temperatures**

T. Yoshinaka[1], Y. Kubota[2], T. Goto[3], H. Hatta[1]; [1]Japan Aerospace Exploration Agency, Japan, [2]Tokyo University of Science, Japan, [3]Tohoku University, Japan

17:45 - 18:00

S14-078 **Joining Ti-Al-C Ceramics and Fabricating Ti-Al-C/Al_2O_3 Laminated Composites by Preferential Oxidation at Low Oxygen Partial Pressure**

A. Li, Y. Zhou; Institute of Metal Research, China

18:00 - 18:15

S14-079 **High-temperature Strength of Directionally Solidified Boride Eutectics**

I. Bogomol[1,2], T. Nishimura[2], O. Vasylkiv[2], Y. Sakka[2], P. Loboda[1]; [1]National Technical University of Ukraine “KPI”, Ukraine, [2]National Institute for Materials Science, Japan

18:15 - 18:30

S14-080 **Computer Models of T-x-y Diagrams with Ternary Compounds**

V. Lutsyk[1,2], N. Yuri[1,2]; [1]RAS, Russia, [2]Buryat State University, Russia

Tuesday, November 16

Room: 1007

9:00 - 10:30: Silicon Carbide Fiber

Chairs: Lalit Manocha (Sardar Patel University, India) and Hidehiko Tanaka (National Institute for Materials Science, Japan)

9:00 - 9:30
S14-081 **High-Temperature Fiber Composites by Reactive Melt Infiltration (Invited)**
W. Krenkel, F. Gugel, R. Voigt, H. Mucha; University of Bayreuth, Germany

9:30 - 9:45
S14-082 **Global and Local Damage Parameters in Carbon Fiber-SiC Matrix Hybrid Ceramics**
M. Ikegami[1], S. Q. Guo[2], Y. Kagawa[1,2]; [1]The University of Tokyo, Japan, [2]National Institute for Materials Science, Japan

9:45 - 10:00
S14-083 **Experimental Investigations of Frictional Effects in C-SiC Based Ceramic Matrix Systems**
H. Mucha[1,2], N. Langhof[1,2], W. Krenkel[1,2]; [1]University of Bayreuth, Germany, [2]Fraunhofer ISC, Germany

10:00 - 10:15
S14-084 **Understand the Friction Surface Damage of Carbon-Fibre Reinforced Carbon-Silicon Carbide Composites (C_f/C-SiC)**
H. Wu, Y. Wang; Loughborough Univeristy, UK

10:15 - 10:30
S14-085 **Ablation and Thermal Properties of Carbon Fiber Reinforced Phenolic Matrix Composites Prepared by Spray-up Process**
M. M. Dokur, B. Alkan, N. Solak, M. Urgen, G. Goller; Istanbul Technical University, Turkey

10:30 - 10:45 **Break**

10:45 - 11:45: Silicon Carbide Fiber

Chair: Walter Krenkel (University of Bayreuth, Germany)

10:45 - 11:15
S14-086 **Microstructure and Properties of Three Phase Carbon and Ceramic Matrix Composites (Invited)**
L. M. Manocha, H. Patel, R. Pande, S. Manocha; Sardar Patel University, India

11:15 - 11:30
S14-087 **Microstructure and Mechanical Properties of Joints in Sintered SiC Fiber-Bonded Ceramics**
T. Matsunaga[1], H.-T. Lin[2], R. Asthana[3], M. Singh[4], T. Ishikawa[1], S. Kajii[1]; [1]Ube Industries, Ltd., Japan, [2]Oak Ridge National Laboratory, USA, [3]University of Wisconsin-Stout, USA, [4]NASA Glenn Research Center, USA

11:30 - 11:45
S14-088 **The Machinability of 3D-C/SiC Composites**
P. He, S. M. Dong, X. Y. Zhang, Y. S. Ding, L. Gao, Z. Wang; Shanghai Institute of Ceramics, China

14:15 - 15:45: Processing for Sillicon Carbide Composites

Chair: Junichi Tatami (Yokohama National University, Japan)

14:15 - 14:45
S14-089 **Industrialization of Advanced SiC/SiC Composites and SiC Based Composites; Intensive Actitities at Muroran Institute of Technology under OASIS (Invited)**
A. Kohyama[1,2], Y. Kohno[1], H. Kishimoto[1], J. S. Park[1,2], H. C. Jung[2]; [1]Muroran Institute of Technology, Japan, [2]Institute of Energy Science and Technology, Co. Ltd., Japan

Symposium 14

14:45 - 15:15

S14-090 **Thermally Conductive, Tough SiC-based Ceramic Attempting to Mimic Nature with High-temperature Properties (Invited)**
T. Ishikawa; Ube Industries, Ltd., Japan

15:15 - 15:30

S14-091 **Effects of Preform Densification on Near-Net Shaping of NITE-SiC/SiC Composites**
N. Nakazato[1], Y. Kohno[1], H. Kishimoto[1], J.-S. Park[1,2], H.-C. Jung[2], A. Kohyama[1,2]; [1]Muroran Institute of Technology, Japan, [2]Institute of Energy Science and Technology Co. Ltd., Japan

15:30 - 15:45

S14-092 **Fabrication of Enviromentally Resistant NITE-SiC/SiC Compotistes**
J.-S. Park[1,2], H.-C. Jung[1], A. Kohyama[1,2]; [1]Institute of Energy Science and Technology, Co. Ltd., Japan, [2]Muroran Institute of Technology, Japan

S14-093 Cancelled

15:45 - 16:15 **Break**

16:15 - 18:45: Processing for Sillicon Carbide Composites

Chairs: Toshihiro Ishikawa (Ube Industries, Ltd., Japan) and
Takashi Goto (Institute for Materials Research, Tohoku University, Japan)

16:15 - 16:45

S14-094 **Properties of Carbide Ceramics from Gelcasting and Pressureless Sintering (Invited)**
D. Jiang; Shanghai Institute of Ceramics, China

16:45 - 17:15

S14-095 **XAFS Analysis of Ag in the Anti-bacterial Ceramics Glaze (Invited)**
N. Isu[1], Y. Kato[1], S. Yamazaki[1], A. Nakahira[2], C. Numako[3]; [1]INAX Corp., Japan, [2]Osaka Prefecture University, Japan, [3]The University of Tokushima, Japan

17:15 - 17:30

S14-096 **Mechanical and Corrosion Test on SiC Multilayer Contenenting Porous Layers**
C. V. Bolivar[1], S. Biamino[1], M. Pavese[1], P. Fino[1], P. Hähner[2], C. Badini[1]; [1]DISMIC, Politecnico di Torino, Italy, [2]JRC-Institute for Energy European Commission, Netherlands

17:30 - 17:45

S14-097 **Joining of Silicon Carbide Ceramics by Using Tape Cast Interlayer**
W. B. Tian, H. Kita, N. Kondo, H. Hyuga, T. Nagaoka; National Institute of Advanced Industrial Science and Technology, Japan

17:45 - 18:00

S14-098 **The Role of Chromium Carbide and Carbon Additives in Titanium Carbide Sintering**
P. Rutkowski, J. Lis, L. Stobierski, G. Górny; AGH University of Science and Technology, Poland

18:00 - 18:15

S14-099 **Injection Molding of Alumina-Chromia-Yttria Nanocomposites**
R. Gadow, F. Kern, F. Sommer; University of Stuttgart, Germany

18:15 - 18:30

S14-100 **Rheological Properties of Mg-SiC Feedstock for the Powder Injection Molding**
M. Alimadadi, S. M. Taheri, M. Alizade; Iran Materials and Energy Center, Iran

18:30 - 18:45

S14-101 **Themal and Morphological Characterization of Poly(Butylene Terephthalate)/Silica Nanocomposites**
M. Parvinzadeh, R. Hajiraeesi; Islamic Azad University, Iran

Wednesday, November 17

Room: 1007

9:00 - 10:30: Graphite Foams and Porous Ceramics

Chair: Lennart Bergström (Stockholm University, Sweden)

9:00 - 9:30

S14-102 **Bonding and Integration of Graphite Foams to Metallic Systems for Thermal Management Applications (Invited)**

M. Singh[1], A. L. Gyekenyesi[1], R. Asthana[2]; [1]Ohio Aerospace Institute, USA, [2]University of Wisconsin-Stout, USA

9:30 - 10:00

S14-103 **Mechanical Characterization of Graphite Foams (Invited)**

A. L. Gyekenyesi, C. E. Smith, M. Singh; Ohio Aerospace Institute, USA

10:00 - 10:30

S14-104 **The Annealing of Pyrolytic Graphite to Highly Oriented Pyrolytic Graphite (Invited)**

Y. Sodha[1], F. J. Buschmann[2], R. J. Diefendorf[3]; [1]ENEOS, Japan, [2]Knolls Atomic Power Laboratory, USA, [3]Clemson University, USA

10:45 - 12:00: Porous and Textured Ceramics

Chair: Andrew Gyekenyesi (Ohio Aerospace Institute, USA)

10:45 - 11:15

S14-105 **Tuning the Structure and Transport Properties of Macroporous Alumina (Invited)**

L. Bergström[1], L. Andersson[1], M. A. Knackstedt[2], A. C. Jones[2]; [1]Stockholm University, Sweden, [2]Australian National University, Australia

11:15 - 11:45

S14-106 **Fabrication of Textured Ceramics by Colloidal Processing in a Strong Magnetic Field and Subsequent Sintering (Invited)**

Y. Sakka, C. Hu, X. Zhu, T. S. Suzuki, T. Uchikoshi; National Institute for Materials Science, Japan

11:45 - 12:00

S14-107 **Electrochemical Reduction of Nitrates on Pt/MWCNTs Prepared by Vapor-phase Impregnation-decomposition Method**

J. R. V. Garcia[1], E. T. Santillan[1], A. M. Robledo[1], R. Tu[2], A. Ito[2], T. Goto[2]; [1]National Polytechnic Institute, Mexico, [2]Tohoku University, Japan

13:15 - 15:00: Phase, Interface and Microstructure of Ceramics

Chairs: Yuichi Ikuhara (The University of Tokyo, Japan) and Ken Sugawara (TOKUYAMA Corporation, Japan)

13:15 - 13:45

S14-108 **Nonstationary Grain Growth in Cemented Carbides: Theoretical Prediction and Experimental Observations (Invited)**

S.-J. L. Kang, D.-Y. Yang; Korea Advanced Institute of Science and Technology, Korea

13:45 - 14:15

S14-109 **Phase Relationships and Structures of Oxide Crystals Based on First Principles Calculations (Invited)**

I. Tanaka[1,2], A. Seko[1], A. Togo[1], F. Oba[1]; [1]Kyoto University, Japan, [2]Japan Fine Ceramics Center, Japan

14:15 - 14:45

S14-110 **Grain-Boundary Segregation and Phase-Separation Mechanism in Yttria-Stabilized Tetragonal Zirconia Polycrystal (Invited)**

K. Matsui[1], H. Yoshida[2], Y. Ikuhara[3]; [1]Tosoh Corporation, Japan, [2]National Institute for Materials Science, Japan, [3]The University of Tokyo, Japan

Symposium 14

14:45 - 15:00
S14-111 **A Simple Potential for the Interaction of Al/α-Al2O3 Interface**
X. Lai, L. Liu, H. Mei, P. Zhai; Wuhan University of Technology, China

15:00 - 15:15 **Break**

15:15 - 16:00: Phase, Interface and Microstructure of Ceramics

Chair: Suk-Joong Kang (Korea Advanced Institute of Science and Technology, Korea)

15:15 - 15:45
S14-112 **Atomic Structures, Segregation Site and Properties of Ceramic Interface (Invited)**
Y. Ikuhara[1,2,3], Y. Sato[1,2], N. Shibata[1], T. Mizoguchi[1], T. Yamamoto[1,2]; [1]The University of Tokyo, Japan, [2]Japan Fine Ceramic Center, Japan, [3]Tohoku University, Japan

15:45 - 16:00
S14-113 **An Atomic-Scale Study of SiAlON Ceramics Using Aberration Corrected Scanning Transmission Electron Microscopy**
H. Yurdakul[1,2], J. C. Idrobo[2,3], S. Turan[1], S. J. Pennycook[2,3]; [1]Anadolu University, Turkey, [2]Oak Ridge National Laboratory, USA, [3]Vanderbilt University, USA

16:00 - 17:15: Aluminium Niteride and Related Compounds

Chair: Hasan Mandal (Anadolu University, Turkey)

16:00 - 16:30
S14-114 **Effect of Ca-Al-O Compounds Addition on Reflectivity of AlN Ceramics (Invited)**
K. Sugawara, Y. Kanechika; TOKUYAMA Corporation, Japan

16:30 - 16:45
S14-115 **AlN-TiN Ceramic Nanocomposite Formation by Reactive Milling and Shock Compaction Method**
H. AminiMashhadi[1], P. Manikandan[1], G. Kennedy[1], R. Tomoshige[2], K. Hokamoto[3]; [1]Kumamoto University, Japan, [2]Sojo University, Japan, [3]Kumamoto University, Japan

16:45 - 17:00
S14-116 **Controlling of Nitriding Process on Reactive Plasma Spraying of Al Particles**
M. Shahien, M. Yamada, T. Yasui, M. Fukumoto; Toyohashi University of Technology, Japan

17:00 - 17:15
S14-117 **Theoretical Prediction and Synthesis of Hf_3AlN and Zr_3AlN, Novel Layered Ternary Nitrides with Excellent Damage Tolerance**
F. Li, J. Wang, J. Wang, Y. Zhou; Institute of Metal Research, China

Thursday, November 18

Room: 1007

9:00 - 10:30: Silion Nitride and SiAlON

Chair: Jorge Vargas Garcia (National Polytechnic Institute, Mexico)

9:00 - 9:30
S14-118 **Silicon Nitride Grain Boundary Glass Chemistry, Structure and Properties (Invited)**
S. Hampshire; University of Limerick, Ireland

9:30 - 10:00
S14-119 **Effect of Fine Silicon Addition To Develop Strong SRBSN (Sintered Reaction Bonded Silicon Nitride) (Invited)**
H.-D. Kim; Korea Institute of Materials Science, Korea

10:00 - 10:15

S14120 **Development of CNT-dispersed Si_3N_4 Ceramics with High Strength and Electrical Conductivity by Adding HfO_2 as a Sintering Aid**

M. Matsuoka, S. Yoshio, T. Yamakawa, J. Tatami, T. Wakihara, K. Komeya, T. Meguro; Yokohama National University, Japan

10:15 - 10:30

S14-121 **Microstructure and Properties of Nanocomposites in Al_2O_3-Si_3N_4 System**

L. F. He, H. D. Kim, T. Nakayama, T. Suzuki, H. Suematsu, K. Niihara; Nagaoka University of Technology, Japan

10:30 - 10:45 **Break**

10:45 - 12:00: Silion Nitride and SiAlON

Chair: Hai-Doo Kim (Korea Institute of Materials Science, Korea)

10:45 - 11:15

S14-122 **Parameters Affecting Grain Boundary Chemistry of SiAlON Ceramics (Invited)**

N. C. Acikbas[1], H. Mandal[2], F. Kara[2], A. Kara[2], S. Turan[2], H. Yurdakul[2], B. Bitterlich[3]; [1]MDA Advanced Ceramics, Turkey, [2]Anadolu University, Turkey, [3]Ceramtec AG, Germany

11:15 - 11:45

S14-123 **The Development and Practical Applications of High Hardness High Toughness Si_3N_4 Ceramics (Invited)**

M. Nagano, N. Mukae, Y. Mori; Nippon Tungsten Co.Ltd., Japan

11:45 - 12:00

S14-124 **Electrophoretic Deposition of $Ti_3Si(Al)C_2$ From Aqueous Suspension**

Y. Liang[1,2], Z. Sun[1,3], J. Chen[1], X. Liu[2], Y. Zhou[1]; [1]Institute of Metal Research, China, [2]Northeastern University, China, [3]Graduate School of Chinese Academy of Science, China

13:15 - 15:00: Ceramics for Automobile and Power Generator

Chair: Toyohiko Yano (Tokyo Institute of Technology, Japan)

13:15 - 13:45

S14-125 **New Technology with Porous Materials; Progress in the Development of the Diesel Vehicle Emission Control (Invited)**

K. Ohno; Ibiden Co., Ltd., Japan

13:45 - 14:15

S14-126 **Microstructure Change of Li(Ni, Co)O_2-based Positive Materials of Li-ion Batteries During Charge and Discharge (Invited)**

Y. Ukyo, Y. Takeuchi[1], C. Okuda, Y. Ito; Toyota Central research & Developments Laboratories Inc., Japan

14:15 - 14:30

S14-127 **Fabrication of Silicon Nitride Nanowire Dispersed Epoxy Composites and their Properties**

T. Kusunose[1], T. Yagi[2], T. Sekino[3]; [1]Kagawa University, Japan, [2]NMIJ, National Institute of Advanced Industrial Science and Technology, Japan, [3]Tohoku University, Japan

14:30 - 14:45

S14-128 **Effect of Water Vapor on Crystal Structure and Cyclic Fatigue Behavior of $La_{0.8}Sr_{0.2}MnO_3$ at High Temperature**

M. Tanaka, T. Matsudaira, I. Tanabe, S. Kitaoka; Japan Fine Ceramics Center, Japan

14:45 - 15:00

S14-129 **Innovative Materials for Automotive Industry: Current Status and Perspectives**

A. Okada; Nagaoka University of Technology, Japan

Symposium 14

Poster Session

Monday, November 15

Room: Event Hall

12:00 - 14:00

Silicon Carbide

S14-P001 **Sintering of Silicon Carbide Ceramics with Co-addition of Gadrinium Oxide and Silica and Their Mechanical Properties**
T. Yano, Y. Horie, M. Imai, K. Yoshida; Tokyo Institute of Technology, Japan

S14-P002 **The Influence of PyC/SiC Interphase on C/SiC Composites**
Y. Zhu, Z. Huang, X. Liu, M. Yuan, D. Jiang; Shanghai Institute of Ceramics, China

S14-P003 **Effects of Nano-powder Slurry on Microstructure and Microchemistry of NITE SiC and SiC/SiC Composites**
J. Takakura[1], H. Kishimoto[1], J.-S. Park[1,2], H.-C. Jung[2], T. Shibayama[3], A. Kohyama[1,2]; [1]Muroran Institute of Technology, Japan, [2]Institute of Energy Science and Technology, Co. Ltd., Japan, [3]Hokkaido University, Japan

S14-P004 **Microstructure of Ceramic Phase for Ceramizable Silicone Rubber Based Composites**
Z. Pędzich[1], D. M. Bieliński[2,3], J. Dul[2]; [1]AGH University of Science & Technology, Poland, [2]Institute for Polymers & Dyes Technology, Poland, [3]Technical University of Łódź, Poland

S14-P005 **Bending Strength Property of SiC Composite Ceramics Depending on Surface Grinding Condition**
K. W. Nam[1], E. S. Kim[1], S. W. Park[2]; [1]Pukyong National University, Korea, [2]Kyoto National University, Japan

S14-P006 **Increasing the Elastic Limit of SiC/SiC Ceramics by Growth of SiC Nano Wires in the SiC Fiber Preform**
A. Bruno[1], P. René[1], H. Plaisantin[2], E. Philippe[2], E. Bouillon[2], P. Weisbecker[1], S. Jacques[1]; [1]LCTS, France, [2]Snecma Propulsion Solide, France

S14-P007 **A Fundamental Study for Crack Healing of SiC Ceramics and SiC_f/ SiC Composite Ceramics**
K. W. Nam, I. S. Seo; Pukyong National University, Korea

S14-P008 **Integration of UV-LIGA Process with Slip Casting for Fabricating Polycarbosilane-Derived Silicon Carbide MEMS**
T. Namazu[1], T. Ishikawa[1], Y. Hasegawa[2], K. Kuroda[3], Y. Takami[3], S. Inoue[1]; [1]University of Hyogo, Japan, [2]ART Kagaku, Co. Ltd., Japan, [3]Silveralloy, Co. Ltd., Japan

S14-P009 **The effect of Filler (SiC, Si, Carbon Black) Addition during LSI Process for C/C-SiC Composite**
K. Seyoung[1], I.-S. Han[1], K.-S. Hong[1], D.-W. Seo[1], J.-H. Yu[1], S.-D. Kim[1], S.-K. Woo1, B.-K. Jang[2]; [1]Korea Institute of Energy Research, Korea, [2]National Institute for Materials Science, Japan

S14-P010 **Effect of Particle Size on the Dynamic Mechnical Behavior and Deformed Microstructure of SiCp/ Al Composites**
D. Cao, L. Liu, W. She, P. Zhai, Q. Zhang; Wuhan University of Technology, China

S14-P011 **Rheological Behavior of Al- SiC_p Feedstock**
A. Ghanbari[1], M. Alizadeh[1], E. Ghasemi[2]; [1]Iran Materials and Research Center, Iran, [2]Iran Paint Research Center, Iran

S14-P012 **Rheological Behavior of Al- SiC_p Feedstocks**
A. Ghanbari[1], M. Alizadeh[1], E. Ghasemi[2]; [1]Iran Materials and Energy Research Center, Iran, [2]Iran paint Research, Iran

S14-P013 **Passive Oxidation Behavior CVD SiC at Moderate Temperatures**
N. Kumatani, R. Tu, T. Goto; Tohoku University, Japan

Niteride Ceramics

S14-P014 Oxidation Behavior of AlN/h-BN Nano Composites at High Temperatures
H. Jin[1,2], W.-Z. Li[1], Y. Huang[1], N. Gao[1], B. He[1], G. Qiao[1], Z. Jin[3]; [1]Xi'an Jiaotong University, China, [2]Far East Holding Group Co. Ltd., China

S14-P015 Sintering of Silicon Nitride Ceramics with Magnesium Silicon Nitride and Yttrium Oxide as Sintering Additives
J. Guojian[1], X. Jiayue[1], P. Guihua[2], Z. Hanrui[3], L. Wenlan[3], X. Suying[3], M. Yongjun[4]; [1]Shanghai Institute of Technology, China, [2]Guangxi Normal University, China, [3]Shanghai Institute of Ceramics, China, [4]Shanghai University, China

S14-P016 The Effect of Heat-Treatment on Thermal Conductivity of Silicon Nitride Ceramics
K. Yoshida[1], Y. Sekimoto[2], K. Katayama[2], T. Wasanpiarnpong[3], M. Imai[1], T. Yano[1]; [1]Tokyo Institute of Technology, Japan, [2]Tokai University, Japan, [3]Chulalongkorn University, Thailand

S14-P017 Influence of Additives on the Nitridation of Silicon
Y.-C. Lee, W.-H. Tuan; National Taiwan University, Taiwan

S14-P018 Wear Characteristics of Si_3N_4 Ceramics According to the Amount of Additive SiO_2 Nano Colloidal
S. H. Hwang, H. I. Je, Y. K. Jeong, K. W. Nam; Pukyong National University, Korea

S14-P019 The Crack Healing Behavior of Si_3N_4 Ceramics with SiO_2 1.3 wt.% Nano - Colloidal Additive
K. W. Nam[1], S. H. Park[1], K. K. Eun[1], J. S. Kim[2]; [1]Pukyong National University, Korea, [2]NGE Tech, Korea

S14-P020 Analyses of Microstructure and Oxygen Content Effects on Thermal Conductivity of AlN Ceramics by Using Slack's Plot
R. Kobayashi, K. Oh-ishi; Chuo University, Japan

S14-P021 Aluminium Oxynitride as Material for High-Temperature Applications
D. Zientara[1], J. Domagała[1], D. P. Sert[2], M. M. Bućko[1], Eż. Godlewska[1], G. Górny[1], J. Lis[1]; [1]AGH – University of Science and Technology, Poland, [2]Ecole Europeene d'Ingenieurs en Genie des Materiaux, France

S14-P022 Tribological Behaviour of SiAlON Ceramics
N. C. Acikbas[1], H. Mandal[2], F. Kara[2], Kumar[3], B. Basu[3]; [1]Bilecik University, Turkey, [2]Anadolu University, Turkey, [3]Indian Institute of Technology, India

S14-P023 Cutting Performance of SiAlON Based Ceramic Materials
A. Çelik[1], İ. Lazoğlu[2], Y. Karpat[3], A. Kara[1], F. Kara[1]; [1]Anadolu University, Turkey, [2]Koç University, Turkey, [3]Bilkent University, Turkey

S14-P024 Synthesis and Characterization of SiAlONs by Reduction Nitridation of Aluminosilicate Zeolite
T. Wakihara, T. Yamakawa, A. Ihara, J. Tatami, K. Komeya, T. Meguro; Yokohama National University, Japan

S14-P025 Effect of α-Si_3N_4 Addition on Sintering of α-Sialon Powder via Carbonthermal Reduction Nitridation of Boron-rich Slag-based Mixture
J. Wu, X. Xue, T. Jiang; Northeastern University, China

S14-P026 Nano Emulsion Silicone Coating on Polyester Textile: Improve Adhesion Using Atmospheric Plasma Treatment
M. Parvinzadeh[1], I. Ebrahimi[2]; [1]Islamic Azad University, Iran, [2]Isfahan University of Technology, Iran

S14-P027 Influence of Nanosilica on Surface Properties of Polybutylene Terephthalate/Silica Nanocomposites
M. Parvinzadeh, R. Hajiraeesi; Islamic Azad University, Iran

S14-P028 Flammability and Thermal Properties of Polyethylene Terephthalate Fibers Coated with Nano, Micro and Macro Emulsion Silicone
M. Parvinzadeh, M. H. Rahimi, M. Y. Navid; Islamic Azad University, Iran

S14-P029 Effects of Processing on the Characteristics of Boron Nitride Whiskers
Y. Zhang, L. Zhao, H. Gong, S. Tan; Shandong University, China

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S14-P030 Mechanical Properties of Hexagonal Boron Nitride Libricated Composites
G. Górny, L. Stobierski, P. Rutkowski; AGH University of Science and Technology, Poland,

Structual Oxide Ceramics

S14-P031 Fabrication and Evaluation of Arrayed Needle-like TiO_2 Particle – Transparent Resin Composite Films
S. Kikitsu[1], T. Otsuka[1], H. Miyazaki[1], H. Suzuki[2], T. Ota[3]; [1]Shimane University, Japan, [2]Shizuoka University, Japan, [3]Nagoya Institute of Technology, Japan

S14-P032 Effect of the Starting Materials on the Microstructure of Ce-TZP/$BaAl_{12}O_{19}$ Composites
S. Oori, T. Kojima, N. Uekawa, K. Kakegawa; Chiba University, Japan

S14-P033 SH – Synthesis of Composite Ceramic Materials Based on Zirconium Compounds
Z. A. Mansurov, I. V. Tancereva, A. Tulepova, I. M. Vongay, A. N. Karabalin; RSE Institute of Combustion Problem, Kazakhstan

S14-P034 Effect of Additive on the Microstructure for ZrO_2-based Ceramics
S. Misu[1], H. Ohnishi[2], T. Nakatani[3], A. Nakahira[1,4]; [1]Osaka Prefecture University, Japan, [2]Nikkato, Japan, [3]Daiichi Kigenso, Japan, [4]Tohoku University, Japan

S14-P035 Recession Behavior of Yb_2SiO_5 under High Speed Steam Jet at High Temperatures
S. Ueno[1], T. Ohji[2], H.-T. Lin[3]; [1]Nihon University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Oak Ridge National Laboratory, USA

S14-P036 Rheological Properties of Mg-Al_2O_3 Feedstock for the Powder Injection Molding
S. M. Taheri, M. Alimadadi, M. Alizadeh; Iran Materials and Energy Research Center, Iran

S14-P037 Synthesis and Evaluation of Various Zeolites from Waste Glasses
T. Moriguchi[1], K. Kumadani[1], T. Shirai[1], M. Sato[2], A. Nakahira[1,2]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan

S14-P038 Synthesis on the Properties of HAp with Gd Doping
M. Sato[1], H. Murata, K. Matsunaga, A. Nakahira[1,2]; [1]Tohoku University, Japan, [2]Osaka Prefecture University, Japan, [3]Kyoto University, Japan

S14-P039 Investigation of Ettringite Generation in the Different Aqueous Solution
M. Sato[1], K. Yabuta[2], A. Nakahira[1,3]; [1]Tohoku University, Japan, [2]Nippon Slag Association, Japan, [3]Osaka Prefecture University, Japan

S14-P040 Synthesis and Evaluation of Nanowire and Nanofiber Materials by Anodization and Electroplating Methods
Y. Kawabe[1], M. Sato[2], A. Nakahira[1,2]; [1]Osaka Prefecture University, Japan, [2]Tohoku University, Japan

Fuctional Oxide Ceramics

S14-P041 Therotical Study Electronic, Mechanical and Optical Properties of ZrO_2 Polymorphs
J. Feng[1,2], Z. C. Huang[1], J. C. Chen[2], R. Zhou[2], W. Pan[1]; [1]Tsinghua University, China, [2]Kunming University of Science and Technology, China

S14-P042 Corrosion Behavior of SnO_2-based Electrode Ceramics in Soda-lime Glass Liquid
G. Luo, Q. Shen, Q. Li, C. Wang, L. Zhang; Wuhan University of Technology, China

S14-P043 Preparation of Bulk Na_2O–BaO–PbO–Nb_2O_5–SiO_2 Glass-Ceramic Dielectrics for Energy Storage Sources
J. Luo, Q. Tang, Q. Zhang, J. Zhu, D. Han, L. Wang, J. Du; General Research Institute for Nonferrous Metals, China

S14-P044 Synthesis and Characterization of AgCl-Transparent Regin Photochromic Composites
H. Shimoguchi[1], H. Miyazaki[1], H. Suzuki[2], T. Ota[3]; [1]Shimane University, Japan, [2]Shizuoka University, Japan, [3]Nagoya Institute of Technology, Japan

S14-P045 **Effect of Electric Field and Temperature on Microstructure in Sodium Potassium Niobate - Cement Composites**
R. Potong, R. Rianyoi, P. Jarupoom, K. Pengpat, A. Chaipanich; Chiang Mai University, Thailand

S14-P046 **Influence of Curing Age on Microstructure in Barium Titanate – Portland Cement Composites**
R. Rianyoi, R. Potong, N. Jaitanong, A. Chaipanich; Chiang Mai University, Thailand

S14-P047 **Electric and Dielectric Study of Gd^{3+} Substituted Mg Ferrite Synthesized by Conventional Ceramic Method**
J. Chand[1], G. Kumar[1,2], M. Singh[1]; [1]Himachal Pradesh University, India, [2]Green Hills Polytechnic College, India

S14-P048 **Characterization of Fe-doped Layered Titanate Synthesized by Various Methods**
S. Tajiri[1], A. Nakahira[1,2]; [1]Osaka Pref. Univ., Japan, [2]Tohoku University, Japan

S14-P049 **Effects of TiO_2 Doping Fe-Mn-Cu-Co Spinel on the Physical Properties of Diesel Oil**
D. Huang[1], J. Zhou[1,2], H. Cao[1], Y. Dai[1,2], W. Chen[1,2]; [1]Wuhan University of Technology, China, [2]State Key Laboratory of Advanced Technology for Materials Synthesis and Processing, China

S14-P050 **Dielectric Characteristics and Phase Evolution of $Mg(Ta_{1-x}Nb_x)_2O_6$ (x=0–0.16) Ceramics at Microwave Frequencies**
C.-L. Huang, J.-Y. Chen; National Cheng Kung University, Taiwan

S14-P051 **Study on Characteristic Phonon Spectrum of Negative Thermal Expansion Materials with Framework Structure for Material Design**
Y. Yamamura, K. Saito; University of Tsukuba, Japan

Ceramics Films and Coatings

S14-P052 **Mechanical Properties and Microstructure of Cr-Zn-N-O Thin Films Prepared by Pulsed Laser Deposition**
F. Sekiguchi[1], J. Shirahata[1], H. Asami[2], T. Suzuki[1], T. Nakayama[1], H. Suematsu[1], K. Niihara[1]; [1]Nagaoka University of Technology, Japan, [2]Tomakomai National College of Technology, Japan

S14-P053 **Mechanical Properties and Microstructure of (Cr,Ti)(N,O) Thin Films Prepared by Pulsed Laser Deposition**
H. Asami[1], K. Takazawa[1], K. Kuwahara[1], T. Suzuki[2], T. Nakayama[2], H. Suematsu[2], K. Niihara[2]; [1]Tomakomai Natinal College of Technology, Japan, [2]Nagaoka University of Technology, Japan

S14-P054 **The Composition Material on Basis of Diamond Powder, which Plated by Cobalt**
O. V. Derev'yanko[1], M. V. Luchka[1], I. L. Shabalin[2], V. O. Evdokimov[1], E. M. Shlychok[1]; [1]Frantsevych Institute for Problems of Materials Science of NASU, Ukraine, [2]The University of Salford, UK

S14-P055 **Zirconia Based Ceramic Coating on a Metal with Plasma Electrolytic Oxidation**
T. Kato, T. Akatsu, Y. Shinoda, F. Wakai; Tokyo Institute of Technology, Japan

S14-P056 **Laser Chemical Vapor Deposition of AlN Film by Using $Al(acac)_3$ and NH_3 Precursors**
Y. You, A. Ito, R. Tu, T. Goto; Tohoku University, Japan

S14-P057 **High-speed Preparation of $YBa_2Cu_3O_{7-\delta}$ Film on Polycrystalline Al_2O_3 Substrate by Laser Chemical Vapor Deposition Using Nd:YAG Laser**
P. Zhao, A. Ito, R. Tu, T. Goto; Tohoku University, Japan

S14-P058 **Effect of Laser Power on Preparation of Ti(O,N) Films by Laser Chemical Vapor Deposition Using a Diode Laser**
T. Yonesaki, A. Ito, T. Goto; Tohoku University, Japan

S14-P059 **Phase Evolution and Thermo-Physical Properties of $(La_xGd_{1-x})_2(Zr_yCe_{1-y})_2O_7$ Systems for Thermal Barrier Coating (TBC)**
H.-T. Kim[1], K. Kwak[1], B.-C. Shim[1], S.-M. Lee[1], S. Kim[1], Y.-S. Oh[1], B.-K. Jang[2]; [1]Korea Institute of Ceramic Engineering and Technology, Korea, [2]National Institute of Materials Science, Japan

S14-P060 **Synthesis and Nanomechanical Property Characterization of Tenary B-C-N Films**
D.-I. Kim, D. Jeong, K.-H. Kim; Pusan National University, Korea

Symposium 14

S14-P061 Optimization of Alumina Slurry Properties and Drying Conditions in the Spray Drying Process and Characterization of Corresponding Coating Fabricated by Atmospheric Plasma Spray
Y. Bai[1], J. F. Yang[1], S. W. Lee[2], H. Chen[2], F. L. Yu[1]; [1]Xi'an Jiaotong University, China, [2]Sun Moon University, Korea

Sintering of Ceramics

S14-P062 Fabrication of Al_2O_3-W Functionally Graded Materials by Slipcasting Method
T. Katayama[1], S. Sukenaga[1], N. Saito[1], H. Kagata[2], K. Nakashima[1]; [1]Kyushu University, Japan, [2]Advanced Cermic Section, TOTO Ltd., Japan

S14-P063 Effect of TiO_2 Addition on the Properties of Al_2O_3-ZrO_2 Composites Prepared by Spark Plasma Sintering
O. Ormanci, E. Yilmaz, I. Akin, F. Sahin, O. Yucel, G. Goller; Istanbul Technical University, Turkey

S14-P064 Residual Stress in 81%SiO_2_13%B_2O_3-4%Na_2O-10%Al_2O_3 Sintered by Spark Plasma Sintering (SPS) and Hot-pressing
J. Y. Zhang, H. Zhan, Z. Y. Fu; Wuhan University of Technology, China

S14-P065 Consolidation of Stacking Disordered SiC Powder by High Pressure SPS
T. Kawaguchi[1], Y. Kodera[1], N. Toyofuku[1], M. Ohyanagi[1], Z. A. Munir[2]; [1]Ryukoku University, Japan, [2]University of California, Davis, USA

S14-P066 Preparation of Vanadium Dioxide Ceramics by Pressureless Sintering and spark Plasma Sintering
D. Manfredi[1], E. P. Ambrosio[1], M. Pavese[2], S. Biamino[2], F. Deorsola[2], P. Fino[2]; [1]Italian Institute of TechnologyItaly, [2]Politecnico di Torino, DISMIC, Italy

S14-P067 Spark Plasma Sintered Transparent Lutetium Oxide by Two-Step Pressure
L. An, A. Ito, T. Goto; Tohoku University, Japan

S14-P068 Electrical Conductivity of Silicon Carbide Consolidated with Stacking Disorder-order Transformation by Spark Plasma Sintering
T. Shibata[1], N. Toyofuku[1], Y. Kodera[1], M. Ohyanagi[1], Z. A. Munir[2]; [1]Ryukoku University, Japan, [2]University of California, USA

S14-P069 Precipitation of Ni Nanoparticle on TiN Powder by Rotary CVD and Its Densification of TiN/Ni by SPS
H. Hanekawa, R. Tu, T. Goto; Tohoku University, Japan

S14-P070 Synthesis and Densification of TiN/TiB_2 Ceramic Composites via Reactive Spark Plasma Sintering Method
I. Khobta[1], O. Petukhov[1], O. Vasylkiv[2], Y. Sakka[2], A. Ragulya[1]; [1]National Academy of Science of the Ukraine, Ukraine, [2]National Institute for Materials Science, Japan

S14-P071 Microstructure and Mechanical Properties of Magnesium-Aluminum Joined Layers by Spark Plasma Sintering
M. Gao[1,2], R. Tu[1], T. Goto[1]; [1]Tohoku University, Japan, [2]Wuhan University of Technology, China

S14-P072 Pressure Assisted Sinter-joining of AlN Ceramics
K. Kubota, J. Tatami, T. Wakihara, T. Meguro, K. Komeya; Yokohama National University, Japan

S14-P073 Milliwave Sintering of Silicon Carbide with Boron and Carbon Additives
M. Sekimoto[1,2], T. S. Suzuki[2], H. Tanaka[2], T. Nishimura[2], Y. Sakka[1,2]; [1]University of Tsukuba, Japan, [2]National Institute for Materials Science, Japan

S14-P074 Effects of Mechanical Alloying and Microwave Heating on Synthesis and Sintering of Alumina-Mullite-Zirconia Composites
S. Ghaffari, T. Ebadzade, M. Alizade; Iran Materials and Energy Research Center, Iran

S14-P075 Effect of B_2O_3 Additive on Structural Ordering and Lattice Orientation during the Consolidation of Turbostratic BN
K. Yasui, N. Toyofuku, Y. Kodera, M. Ohyanagi; Ryukoku University, Japan

S14-P076 ***In-situ*** **Measurement of Sintering Shrinkage Behavior of Silicon Carbide under Pressure and its Analysis by Master Sintering Curve Theory**
S. Kawakami[1], J. Tatami[1], T. Wakihara[1], K. Komeya[1], T. Meguro[1], P. Xin[2], M. Ando[2]; [1]Yokohama National University, Japan, [2]Covalent Materials Corporation, Japan

S14-P077 **Characterization of Microstructure and Thermal Properties of Nano and Micro-sized Ceramic Powders for APS Deposition of Ceramic Layers**
G. Moskal, A. Iwaniak, M. Hetmańczyk; The Silesian University of Technology, Poland

S14-P078 **Evaluation of the Sinterability of Hard Metal through High-Purification of Waste Hard Metal Sludge**
J.-H. Pee[1], S.-H. Eum[1], W.-S. Cho[1], K.-J. Kim[1], J.-C. Choi[2]; [1]ICET, Korea, [2]Recytech Korea Co., Ltd,. Korea

S14-P079 **Negative Thermal Expansion Behavior and Electrical Condutivity of $Mn_3(Cu_{0.6}Si_{0.15}Ge_{0.25})N$ with Different Sintering Temperatures**
R. Huang, Z. Chen, H. Yang, Z. Wu, X. Chu, L. Li; Technical Institute of Physics and Chemistry, China

Mechanical Properties and Characterizations of Ceramics

S14-P080 **Young's Modulus and Poisson's Ratio of Liquid Phase-Sintered Silicon Carbide**
Y. Okuzono, Y. Hirata, N. Matsunaga, S. Sameshima; Kagoshima University, Japan

S14-P081 **Mechanical and Thermal Properties of 99% and 92% Alumina at Cryogenic Temperatures**
Z. Xie, H. Chen, W. Xue, X. Tang; Tsinghua University, China

S14-P082 **Investigation of Structural Properties of Hetero-Module Composite in the B_4C-BN-TiC-SiC-C System**
Z. Kovziridze[1], J. G. Heinrich[2], R. Görke[2], H. Bornhöft[2], U. Kahnert[2], N. Nizharadze[1], G. Tabatadze[1]; [1]Georgian Technical University, Georgia, [2]Clausthal University of Technology, Germany

S14-P083 **The Application of Fractography to Strength Estimation of Porous Alumina**
T. Kobayashi, T. Misaki, K. Uemura, T. Shiota, K. Yasuda; Tokyo Institute of Technology, Japan

S14-P084 **Wetting and Adhesion of Cu on AlN**
C.-H. Wang[1], W.-H. Tuan[1], P. Shen[2]; [1]National Taiwan University, Taiwan, [2]Jilin University, China

S14-P085 **Numerical Analysis of Cation Diffusion in Yttria-zirconia Nanostructured Ceramics**
R. L. G. Romero[1], D. Gómez-García[1], J. J. Meléndez[2], A. Domínguez-Rodríguez[1], F. L. Cumbrera-Hernández[1]; [1]Universidad de Sevilla, Spain, [2]Universidad de Extremadura, Spain

S14-P086 **AE Monitoring of Microdamage Accumulation of Ceramic for Artificial Joints**
J. Ikeda[1], K. Nakamura, F. Miyaji[1], Y. Yamada[2], S. Wakayama[2]; [1]Japan Medical Materials Corp., Japan, [2]Tokyo Metropolitan University, Japan

S14-P087 **Dynamic Mechnical Properties and Damping Mechanism of 0-3 PMN/CNFs/EP Composites**
M. Shi, Z. Huang, Y. Qin; Wuhan University of Technology, China

S14-P088 **PFM Investigation of Morphology and Interface Feature in PZT-PVDF-Portland Cement Composites**
N. Jaitanong[1], H. R. Zeng[2], G. R. Li[2], Q. R. Yin[2], W. C. Vittayakorn[1], R. Yimnirun[3], A. Chaipanich[1]; [1]Chiang Mai University, Thailand, [2]Shanghai Institute of Ceramics, China, [3]Suranaree University of Technology, Thailand

S14-P089 **Surface Roughness Effects on Partial-Transient-Liquid-Phase Joining of Ceramics**
C. C. Bartlow, S. M. Hong, T. B. Reynolds, A. M. Glaeser; University of California, USA

S14-P090 **Analysis of the Apparent Indentation Size Effect in Hot-pressed Boron Suboxide Ceramics**
R. Machaka[1], T. Derry[1], I. Sigalas[1], J. Neethling[1,2]; [1]University of the Witwatersrand, South Africa, [2]NMMU, South Africa

S14-P091 **A Finite Element Approach to the Study of the Nanoindentation Response of Hot-pressed Boron Suboxide Ceramics**
R. Machaka[1], T. Derry[1], I. Sigalas[1], J. Neethling[2]; [1]University of the Witwatersrand, South Africa, [2]NMMU, South Africa

Symposium 15

Symposium 15: Advanced Ceramic Sensor Technologies

Main Organizers
- Ichiro Matsubara, AIST, Japan
- Linan An, Univ. Central Florida, USA
- Hajime Haneda, NIMS, Japan

Co-Organizers
- Sheikh Akbar, Ohio State Univ., USA
- Pelagia-Irene Gouma, State Univ. New York, USA
- Jong-Heun Lee, Korea Univ., Korea
- Kengo Shimanoe, Kyusyu Univ., Japan
- Woosuck Shin, AIST, Japan
- Chengying Xu, Univ. Central Florida, USA
- Hideaki Yagi, NGK SPARK PLUG CO. LTD., Japan

Oral Session

Wednesday, November 17

Room: 702

9:00 - 9:45

Chair: Nobuhito Imanaka (Osaka University, Japan)

9:00-9:15
S15-001 **Low-temperature, CO Selective Catalytic Materials for Sensor Application**
N. Labhsetwar[1], S. Rayalu[1], A. Bansiwal[1], T. Mitsuhashi[2], H. Haneda[2]; [1]National Environmental Engineering Research Institute, India, [2]National Institute for Materials Science, Japan

9:15 - 9:30
S15-002 **Solid Electrolyte Gas Sensors Based on Cyclic Voltammetry with One Active Electrode**
G. Jasinski, S. Molin, P. Jasinski; Gdansk University of Technology, Poland

9:30 - 9:45
S15-003 **Effects of Sr Addition to La-Based Perovskite Sensing-Electrode on YSZ-Based Amperometric-Type NOx Sensor**
T. Ueda[1], M. Umeda[2], H. Okawa[1], S. Takahashi[1,2]; [1]Japan Fine Ceramics Center, Japan, [2]Daido University, Japan

9:45 - 10:30

Chair: Jong-Heun Lee (Korea University, Korea)

9:45 - 10:00
S15-004 **Solid-State Impedancemetric NOx Sensors Using Lithium-Ion Conductor and Perovskite-Type Oxide Receptor**
Y. Shimizu[1], S. Kuramoto[1], H.-C. Cho[1], S. Takase[1], J.-H. Song[2]; [1]Kyushu Institute of Technology, Japan, [2]Paichai University, Korea

10:00 - 10:15
S15-005 **Inflammable Gas Sensing Properties of Solid-electrolyte Based Gas Sensors Using an Auxiliary Oxide Electrode**
J. Iwabuchi, T. Hyodo, Y. Shimizu; Nagasaki University, Japan

10:15 - 10:30
S15-006 **Novel Ammonia Gas Sensing with Multivalent Ion Conducting Solids**
N. Imanaka; Osaka University, Japan

10:30 - 10:45 **Break**

10:45 - 12:00

Chair: Shunichi Hishita (National Institute for Materials Science, Japan)

10:45 - 11:15
S15-007 **Sensing Technology with Elasticoluminescence -Visualizing 'Invisible' Defects in Structures- (Invited)**
C.-N. Xu; National Institute of Advanced Industrial Science and Technology, Japan

11:15 - 11:30
S15-008 **Strong Mechanoluminescence from Oxynitridosilicate Phosphors**
L. Zhang[1], C.-N. Xu[1,2,3], H. Yamada[1,2]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Kyushu University, Japan, [3]Japan Science and Technology Agency, Japan

11:30 - 11:45
S15-009 **How to Enhance the Properties of Lead-free BZT-xBCT Ceramics**
H. Bao[1,2], D. Xue[1,2], J. Gao[1,2], X. Ren[1,2]; [1]National Institute for Materials Science, Japan, [2]Xi'an Jiaotong University, China

11:45 - 12:00
S15-010 **Non-hystereric Matal-to-insulator Transition in VO_2 Films Grown by Excier-laser-assisted Matal Organic Deposition Process**
M. Nishikawa[1], T. Nakajima[2], T. Kumagai[2], T. Okutani[1], T. Tsuchiya[2]; [1]Yokohama National University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan

13:15 - 14:15

Chair: Woosuck Shin (National Institute of Advanced Industrial Science and Technology, Japan)

13:15 - 13:45
S15-011 **Selective Ceramic Chemosensors Based on Polymorph Stability (Invited)**
P. I. Gouma; SUNY, USA

13:45 - 14:15
S15-012 **Miniature Sensor Systems for Hand-Held Non-Invasive Diagnostic Tools: Monitoring for Exhaled Metabolites in Human Breath (Invited)**
C. E. Davis; University of California, USA

14:15 - 15:00

Chair: Pelagia-Irene Gouma (State University of New York, USA)

14:15 - 14:30
S15-013 **Acetone Nanosensor and Breathanalysis Device for Diabetes Monitoring**
L. Wang[1], M. Stanacevic[2], P. I. Gouma[2]; [1]Univ British Columbia, Canada, [2]SUNY, USA

14:30 - 14:45
S15-014 **Monitoring for COPD Patients Using E-NOSE/SPME System**
H.-G. Byun[1], J.-S. Huh[2], J.-O. Lim[2]; [1]Kangwon National University, Korea, [2]Kyungpook National University, Korea

14:45 - 15:00
S15-015 **Surface Plasmonic Biosensor Using Gold/Alumina Nanocomposite Substrates**
N. Koshizaki, S. Gao, H. Tokuhisa, E. Koyama; National Institute of Advanced Industrial Science and Technology, Japan

15:00 - 15:15 **Break**

Symposium 15

15:15 - 16:15

Chair: Ichiro Matsubara (National Institute of Advanced Industrial Science and Technology, Japan)

15:15 - 15:45
S15-016 **Advanced Sensors for Fossil Energy Applications: Approaches for Sensing in Harsh Environments (Invited)**
R. R. Romanosky, S. M. Maley; National Energy Technology Laboratory, USA

15:45 - 16:00
S15-017 **Toward the Understanding of Relationship between Grain Size Effect and Utility Factor for Semiconductor Gas Sensors**
K. Shimanoe, S. Fujiyama, M. Yuasa, T. Kida; Kyushu University, Japan

16:00 - 16:15
S15-018 **Single-Crystal-Like SnO_2 Films: Preparation and Property**
S. Hishita, P. Janeček, I. Sakaguchi, H. Haneda; National Institute for Materials Science, Japan

16:15 - 17:00

Chair: Kengo Shimanoe (Kyusyu University, Japan)

16:15 - 16:30
S15-019 **Patterned Micro Gas Sensor Fabricated by Micro-molding in Capillary Process Using a Low Concentration of SnO_2 Colloidal Suspension**
H. Fudouzi, Y. Sakka; National Institute for Materials Science, Japan

16:30 - 16:45
S15-020 **Change in Optical and Electrical Properties of Semiconductive Oxides under the Operating Conditions of Gas Sensors**
Y. Matsushima, H. Mori-ai, R. Toyoda, T. Kawai; Yamagata University, Japan

16:45 - 17:00
S15-021 **Luminescence Properties of Doped SnO_2 Powders and Films Designed for Gas Sensor Application**
G. Kovotcenkov, C. Beongki; Gwangju Institute of Science and Technology, Korea

Thursday, November 18

Room: 702

9:15 - 10:30

Chair: Takeo Hyodo (Nagasaki University, Japan)

9:15 - 9:45
S15-022 **Hot Spot in $GdBa_2Cu_3O_{7-\delta}$-Based Composite Ceramics Rods and Their Applications for Oxygen Sensors (Invited)**
T. Okamoto, M. Takata; Nagaoka University of Technology, Japan

9:45 - 10:00
S15-023 **Effect of Coating Thickness on Characteristics of Hot Spot Oxygen Sensor Consisting of $GdBa_2Cu_3O_{7-\delta}$ Coat and Gd_2BaCuO_5 Core**
S. Fujihara, Y. Kuroki, T. Okamoto, M. Takata; Nagaoka University of Technology, Japan

10:00 - 10:15
S15-024 **Diffusion Phenomena in ZnO Thin Films Deposited by PLD Method**
H. Haneda[1,2], I. Sakaguchi[1], K. Matsumoto[2], T. Ogino[2], S. Hishita[1], Y. Adachi[1], T. Ohgaki[1], N. Ohashi; [1]National Institute for Materiasl Science, Japan, [2]Kyushu University, Japan

10:15 - 10:30
S15-025 **UV-assisted Electroless Deposition of ZnO Nano Rods and Gas Sensing Property**
K. Watanabe, Y. Moriura, N. Saito, T. Ohgaki, S. Hishita, N. Ohashi, H. Haneda; National Institure for Materials Science, Japan

10:30 - 10:45 **Break**

10:45 - 11:45

Chair: Hajime Haneda (National Institute for Materials Science, Japan)

10:45 - 11:15
S15-026 **Formaldehyde Sensors Based on Flame Spray Pyrolysis Sn Doped In_2O_3 (ITO) Materials (Invited)**
N. Barsan[1], J. Kemmler[1], S. Pokhrel[2], L. Maedler[2], U. Weimar[1]; [1]University of Tuebingen, Germany, [2]University of Bremen, Germany

11:15 - 11:30
S15-027 **Insights into Gas Sensor Operation from *In-situ* and Operando Spectroscopic Characterization**
A. Gurlo; Technische Universitaet Darmstadt, Germany

11:30 - 11:45
S15-028 **Electrochemical Immobilization of Fluorescent Labeled Probe Molecules on a FTO Surface for Affinity Detection Based on Photo-excited Current**
T. Haruyama, S. Matsuyama, T. Cho; Kyushu Institute of Technology, Japan

13:15 - 14:30

Chair: Nicolae Barsan (University of Tuebingen, Germany)

13:15 - 13:30
S15-029 **Diode-type Gas Sensors Fabricated with a Titania Film on a Ti Plate and Pd-Pt Electrodes -Effects of Polymer Coating on the Hydrogen-sensing Properties-**
T. Hyodo, M. Nakaoka, Y. Shimizu; Nagasaki University, Japan

13:30 - 13:45
S15-030 **MEMS-type Gas Sensor Based on TiO_2 Nanotube for VOCs Detection**
M. Yuasa, M.-H. Seo, T. Kida, N. Yamazoe, K. Shimanoe; Kyushu University, Japan

13:45 - 14:00
S15-031 **Tailored 3D CuO Nanogrid Formation for Sensors and Photocatalysts**
J. Lee, P. I. Gouma; State University of New York, USA

14:00 - 14:15
S15-032 **Suppression of the NO_2 Interference in WO_3-Based Ammonia Sensors by Chromium Doping**
M. Epifani[1], T. Andreu[2,3], R. Díaz[3], J. Arbiol[4], P. Siciliano[1], J. R. Morante[2,3]; [1]CNR-IMM, Italy, [2]Institut de Recerca en Energia de Catalunya, Spain, [3]Universitat de Barcelona, Spain, [4]CSIC, Spain

14:15 - 14:30
S15-033 **NO_2 Adsorption Properties on Various WO_3 Crystals and Relation with Their Sensing Properties**
Z. Meng, C. Kitagawa, T. Hashishin, J. Tamaki; Ritsumeikan University, Japan

Symposium 15

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 - 14:00

S15-P001 Thermoelectric Gas Sensors of Different Catalyst Oxides and Heater Metals
W. Shin[1], M. Nishibori[1], N. Izu[1], T. Itoh[1], I. Matsubara[1], N. Watanabe[2], T. Kasuga[2]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Nagoya Institute of Technology, Japan

S15-P002 Synthesis of Catalyst-Functaionalized Oxide Hollow Spheres for Gas Sensor Applications
S.-J. Kim, I.-S. Hwang, J.-K. Choi, J.-H. Lee; Korea University, Korea

S15-P003 VOC Sensing Properties of CeO_2 Thick Film Elements
I. Matsubara[1], T. Itoh[1], N. Izu[1], W. Shin[1], M. Nishibori[1], K. Suzuki[2], S. Nakamura[2], K. Kanda[2]; [1]National Institute of Advanced Industrial Science and Techniligy, Japan, [2]New Cosmos Electric Co., Ltd., Japan

S15-P004 Polarity Determination of ZnO Films by X-ray Diffraction Using Anomalous Dispersion
Y. Adachi, N. Ohashi, I. Sakaguchi, H. Haneda; National Institue for Materials Science, Japan

S15-P005 Aging Effects of Pt, Pd, and Au loaded SnO_2 as VOC Sensors
T. Itoh[1], I. Matsubara[1], M. Kadosaki[2], Y. Sakai[2], W. Shin[1], N. Izu[1], M. Nishibori[1]; [1]National Institute of Advanced Industrial Science and Technology, Japan, [2]Toyama Industrial Technology Center, Japan

S15-P006 Colorimetric Detection of Metal Ion Using Various Polymers Capped Gold Nanoparticles
J. Roh, Y. Kim; Kwangwoon University, Korea

S15-P007 Amino Acid Mediated Solvothermal Synthesis of Oxide Nanostructures for Gas Sensor Applications
K.-I. Choi, H.-R. Kim, K.-M. Kim, J.-H. Lee; Korea University, Korea

S15-P008 Thickness Dependence of Sensing Performances of SnO_2 Thin Films Prepared by Pulsed Laser Deposition
T. Ohgaki[1], R. Matsuoka[1,2], K. Watanabe[1], K. Matsumoto[1,2], Y. Adachi[1], I. Sakaguchi[1], S. Hishita[1], N. Ohashi[1,2], H. Haneda[1,2]; [1]National Institute for Materials Science, Japan, [2]Kyushu University, Japan

S15-P009 Parallel Observation of Different Biomolecular Recognition Events using a Multi-functional SAM Microarray
N. Shirahata[1,2], Y. Masuda[3], A. Hozumi[3], Y. Sakka[1]; [1]National Institute for Materials Science, Japan, [2]PRESTO-Japan Science and Technology Agency, [3]National Institute of Advanced Industrial Science and Technology, Japan

S15-P010 XAFS and XPS Characterizations of Au/Co_3O_4 CO Combustion Catalyst Integrated on Micro Gas Sensor
M. Nishibori, W. Shin, N. Izu, T. Itoh, I. Matsubara; National Institute of Advanced Industrial Science and Technology, Japan

S15-P011 Solution Synthesis of Various ZnO Nanostructures for Gas Sensor Applications
K.-M. Kim, H.-R. Kim, K.-I. Choi, H.-J. Kim, J.-H. Lee; Korea University, Korea

S15-P012 Development of Ceramics Oxygen Sensor for Material Irradiation Tests
S. Kitagishi, T. Saito, M. Ohmi, K. Tsuchiya; Japan Atomic Energy Agency, Japan

S15-P013 Solvothermal Synthesis of ZnO Spherical Particles and Gas Sensor Appriction
N. Saito[1], K. Matsumoto[1], K. Watanabe[1], T. Aubert[2], H. Haneda[1]; [1]National Institure for Materials Science, Japan, [2]Université de Rennes 1, France

S15-P014 Properties of La-based Perovskite-Type Oxides as Electrode Catalyst for Zirconia Based NOx Sensor
S. Takahashi[1,2], M. Umeda[2], H. Okawa[1], T. Ueda[1]; [1]Japan Fine Ceramics Center, Japan, [2]Daido University, Japan

S15-P015 Fe_2O_3 Hollow Spheres Prepared by Solvothermal Self Assembly Reaction and its Gas Sensing Characterisics
H.-J. Kim[1], H.-R. Kim[1], K.-I. Choi[1], K.-M. Kim[1], G. Cao[2], J.-H. Lee[1]; [1]Korea University, Korea, [2]University of Washington, USA

S15-P016 Microwave-Assisted Hydrothermal Synthesis and Characterization of Hausmannite Type Manganese Oxide
C. X. Cardoso[1], S. R. Teixeira[1,2], L. S. Watanabe[1], M. F. S. Teixeira[1], E. Longo[1,2]; [1]Universidade Estadual Paulista "Julio de Mesquita Filho", Brazil, [2]Instituto Nacional de Ciência e Tecnologia dos Materiais em Nanotecnologia, Brazil

S15-P017 Oxygen Tracer Diffusion through Rreduced-$BaTiO_3$ Ceramics
K. Watanabe, I. Sakaguchi, S. Hishita, N. Ohashi, H. Haneda; National Institute for Materials Science, Japan

S15-P018 Oxygen Diffusion Paths in Non-doped $BaTiO_3$ Ceramics
I. Sakaguchi, K. Watanabe, T. Ohgaki, Y. Adachi, S. Hishita, N. Ohashi, H. Haneda; National Institute for Materials Science, Japan

S15-P019 Optimization of an LSAM Electroceramic for Use in an Oxygen Sensor
K. E. Pappacena, D. Singh, J. L. Routbort; Argonne National Laboratory, USA

S15-P020 Mechanoluminescent Film Sensor for Visualizing Ultrasonic Power Distribution
T. Zhan[1], C.-N. Xu[1,2,3], O. Fukuda[2], H. Yamada[1,2], C. Li[2]; [1]Kyushu University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Japan Science and Technology Agency, Japan

S15-P021 Near Infra-Red Mechanoluminescence from Strontium Alminate Doped with Rare-Earth Ions
Y. Terasawa[1], C.-N. Xu[1,2,3], H. Yamada[1,2], M. Kubo[2]; [1]Kyushu University, Japan, [2]National Institute of Advanced Industrial Science and Technology, Japan, [3]Japan Science and Technology Agency, Japan

S15-P022 Implementation of Simple Statistical Pattern Recognition Methods for Malodor Classification Using Gas Sensor Array
H.-G. Byun[1], J.-S. Shin[1], W.-S. Choi[2], S.-D. Kim[2]; [1]Kangwon National University, Korea, [2]Auto Industrail Co., Korea

Symposium 16

Symposium 16: Innovation in Refractories and Traditional Ceramics

Main Organizers
- Toshiyuki Nishimura, NIMS, Japan
- Toshitaka Ota, Nagoya Institute of Technology, Japan
- Kenji Ogawa, Taiheiyo Cement Corp., Japan

Co-Organizers
- Shinobu Hashimoto, Nagoya Institute of Technology, Japan
- Marc Huger, ENSCI, France
- Emile Hideki Ishida, Tohoku University, Japan
- Norifumi Isu, INAX Corporation, Japan
- Yuichi Kobayashi, Aichi Institute of Technology, Japan
- John C. G. Lee, Research Institute of Industrial Science & Technology, Korea
- Junji Ommyoji, Okayama Ceramics Research Foundation, Japan
- Victor Carlos Pandolfelli, Universidade Federal São Carlos, Brazil
- Takeshi Shiono, Kyoto Institute of Technology, Japan
- Jeffrey Smith, Missouri University of Science and Technology, USA
- Toyohiko Sugiyama, AIST, Japan
- Jinkun Yu, Northeastern University, China
- Shaowei Zhang, The University of Sheffield, UK

Oral Session

Monday, November 15

Room: 806

14:15 - 15:15 Refractories: Carbon-containing Refractories I

Chair: Jingkun Yu (Northeastern University, China)

14:15 - 14:45
S16-001 **Novel Carbon-Containing Refractories with Improved Microstructure, Property and Performance (Invited)**
S. Zhang; The University of Sheffield, UK

14:45 - 15:00
S16-002 **Effects of Alumina Grain Size Distribution on Properties of Alumina-Graphite Bricks**
R. Suzuki, M. Ogata, E. Iida; Shinagawa Refractories Co., Ltd., Japan

15:00 - 15:15
S16-003 **Synthesis of $MgAl_2O_4$-SiC-C Refractory Composite Powder by Forsterite, Alumina and C as Raw Material**
C. Deng, P. Liang, H. Zhu, Y. Wei, C. Bai; Wuhan University of Science and Technology, China

15:15 - 16:00 Refractories: Carbon-Containing Refractories II

Chair: Toshitaka Ota (Nagoya Institute of Technology, Japan)

15:15 - 15:45
S16-004 **Development of the Self-Repairing Function of the Carbon-Containing Refractory (Invited)**
A. Yamaguchi; Okayama Ceramics Research Foundation, Japan

15:45 - 16:00
S16-005 **High Performance Trough Castables with High Level of Carbon Black**
T. Iida, M. Kitamura, N. Yuki; Shinagawa Refractories Co., Ltd., Japan

16:00 - 16:15 **Break**

16:15 - 17:30: Refractories: Corrosion

Chair: Shaowei Zhang (The University of Sheffield, UK)

16:15 - 16:30
S16-006 **Effect of Electromagnetic Field on the Slag Resistance of MgO-C Refractories**
X. Li, T. Wang, B. Zhu; Wuhan University of Science and Technology, China

16:30 - 16:45
S16-007 **Lab Scale Study of the Depletion of Mullite-Corundum Based Refractories Caused by Reaction with Scaffold Materials**
J. Stjernberg[1], M-L. Antti[1], J. C. Ion[1], B. Lindblom[2]; [1]Luleå University of Technology, Sweden, [2]LKAB, Sweden

16:45 - 17:15
S16-008 **Improvement of Slag Corrosion Resistance of Refractories by Adding Carbothermal Reduction Reacted Non-oxides (Invited)**
J. Yu, Z. Yan, B. Ma, Q. Zhu; Northeastern University, China

17:15-17:30
S16-009 **Analysis of the 3D Microstructure of Zirconia-Rich Fused-Cast Refractories: Influence on Mechanical Properties and Corrosion Resistance**
Y. Ding[1,2], M. Boussuge[1], M. Gaubil[2], S. Forest[1], L. Massard[2], S. Gailliègue[1]; [1]MINES-ParisTech, France, [2]Saint-Gobain CREE, France

Tuesday, November 16

Room: 806

9:15 - 10:30: Refractories: Fundamental

Chair: Marc Huger (ENSCI, France)

9:15 - 9:45
S16-010 **Trend of Refractory Industry in Japan (Invited)**
H. Nishio; Shinagawa Refractories Co., Ltd., Japan

9:45 - 10:00
S16-011 **Matrixes for Polyhedration of Multicomponent Systems**
V. Lutsyk, V. Vorobjena; RAS, Russia

10:00 - 10:15
S16-012 **Refractory of Furnaces to Reduce Environmental Impact**
S. Hanzawa[1,2]; [1]NGK Insulators, LTD., Japan, [2]Nagoya Institute of Technology, Japan

10:15 - 10:30
S16-013 **Study of the Behaviour of Mold Powders for Continuous Casting by Using the Heating Microscope**
M. Paganelli, D. Sighinolfi; Expert System Solutions S.r.l., Italy

10:30 - 10:45 **Break**

Symposium 16

10:45 - 11:45: Refractories: Evalution

Chair: Takeshi Shiono (Kyoto Institute of Technology, Japan)

10:45 - 11:00

S16-014 **Influence of Pore Structure Parameters on Thermal Properties of Matrix of Corundum Based Castables**

B. Zhu[1], B. Fang[1,2], X. Gao[2], X. Li[1], X. Jiang[1], F. Zhao[1]; [1]Wuhan University of Science and Technology, China, [2]Shangyu Zili Industries New Material Co. Ltd., China

11:00 - 11:15

S16-015 **Elaboration and Characterization of Flexible Ceramics: Case of Aluminum Titanate Samples**

A. Gallet-Doncieux[1], M. Boursin[1], J.-P. Cochard[1], T. Chotard[1], M. Huger[1], P. Michaud[1], T. Ota[2], N. Adachi[2]; [1]GEMH-ENSCI, France, [2]Nagoya Institute of Technology, Japan

11:15 - 11:45

S16-016 **Microstructural Effects Associated to CTE Mismatch for Enhancing the Thermal Shock Resistance of Refractories (Invited)**

M. Huger[1], T. Ota[2], N. Tessier-Doyen[1], T. Chotard[1], P. Michaud[1]; [1]GEMH-ENSCI, France, [2]Nagoya Institute of Technology, Japan

14:15 - 15:00: Reuse and Recycle Systems

Chair: Emile Hideki Ishida (Tohoku University, Japan)

14:15 - 14:30

S16-017 **Development of Cordierite Honeycomb Ceramics Using Cordierite Waste**

C. Mongkolkachit[1], P. Aungkavattana[1], W. Gosuphan[2], T. Wasanapiarnpong[2]; [1]National Metal and Materials Technology Center, Thailand, [2]Chulalongkorn University, Thailand

14:30 - 14:45

S16-018 **Characterization of Zeolite-Geopolymer Hybrid Bulk Materials from Coal Fly Ash**

H. Takeda, S. Hashimoto, S. Honda, Y. Iwamoto; Nagoya Institute of Technology, Japan

14:45 - 15:00

S16-019 **Preparation of Insulating Ceramics with Low Dielectric Constant Fabricated by Low-Temperature Firing Waste Glass Powder Compacts with Crystallization**

M. Sato[1], T. Takaishi[1], H. Inada[1], T. Shiono[2], Y. Okamoto[2], K. Hayashi[2]; [1]Kyoto Municipal IRI, Japan, [2]Kyoto Institute of Technology, Japan

15:00 - 15:45: Advances in Whiteware I

Chair: Yuichi Kobayashi (Aichi Instiute of Technology, Japan)

15:00 - 15:15

S16-020 **How the Surface of a Ceramic Kyusu Teapot Influences the Taste of Green Tea**

J. Inagaki, T. Nishikawa; Mie Prefecture Industrial Research Institute, Japan

15:15 - 15:30

S16-021 **Fabrication of Cordierite/Spodumene Composite by Slip Casting for Stove Top Ceramic Cookware**

P. Junlar[1,2], W. T. Saengchantara[2], T. Wasanapiarnpong[1]; [1]Chulalongkorn University, Thailand, [2]Ministry of Science and Technology, Thailand

15:30 - 15:45

S16-022 **Fabrication of Silica Glass Ware from Rice Husk Ash by Viscous Sintering with Spodumene Additions**

B. Vorajesdarom, T. Wasanapiarnpong; Chulalongkorn University, Thailand

15:45 - 16:45: Advances in Whiteware II

Chair: Jun-ichi Inagaki (Mie Prefecture Industrial Research Institute, Japan)

15:45 - 16:00
S16-023 **Characterization of Low Firing Temperature Ceramic Glaze Using Phuket MSW and Soda Lime Cullet**
P. Ketboonruang, S. Jinawat, D. P. Kashima, T. Wasanapiarnpong, P. Sujaridworakun, W. Buggakupta, N. Traiphol, S. Jiemsirilers; Chulalongkorn University, Thailand

16:00 - 16:15 **Break**

16:15 - 16:30
S16-024 **Effects of Firing Atmosphere on the Color Manifestation of Celadon**
H.-S. Choi[1], J.-H. Pee[1], W.-S. Cho[1], K.-J. Kim[1], G.-I. Gang[2], J.-H. Ryu[3]; [1]KICET, Korea, [2]Dankook University, Korea, [3]Haegang Koryo-Celadon, Korea

16:30 - 16:45
S16-025 **Effect of Porcelain Shape on Strain Behavior of Strengthened Porcelain in Impact Test**
A. Hayashi[1,2], K. Kurachi[1], M. Mizuno[1], T. Ota[2]; [1]Gifu Prefectural Ceramics Research Institute, Japan, [2]Nagoya Institute of Technology, Japan

Wednesday, November 17

Room: 806

9:30 - 10:30: Building Materials I

Chair: Thanakorn Wasanapiarnpong (Chulalongkorn University, Thailand)

9:30 - 9:45
S16-026 **Processing of Photocatalytic, Highly Hydrophylic Porcelain Stoneware Large Slabs**
M. Raimondo[1], M. Dondi[1], C. Zanelli[1], G. Guarini[1], F. Marani[2], L. Fossa[2]; [1]Institute of Science and Technology for Ceramics, Italy, [2]System Group, Italy

9:45 - 10:00
S16-027 **Technical Properties of Fast Firing Floor Tiles Produced by Experimental Design Method**
A. Koda, G. Arslan; Anadolu University, Turkey

10:00 - 10:15
S16-028 **Development of Ceramic Wall Tile Body Compositions for Energy Saving and Eco-Friendly Production**
Ö. Cengiz[1], A. Kara[1]; [1]Anadolu University, Turkey, [2]Ceramic Research Centre, Turkey

10:15 - 10:30
S16-029 **Characterisation of the Particle Generation Involved During the Laser Ablation of Heterogeneous Ceramics**
R. Lahoz[2], J. M. Pedra[1], J. B. Carda[1], G. F. Fuente[2]; [1]Universidad Jaume I, Spain, [2]Universidad de Zaragoza, Spain

10:30 - 10:45 **Break**

Symposium 16

10:45 - 12:00: Building Materials II

Chair: Norifumi Isu (INAX Corporation, Japan)

10:45 - 11:00
S16-030 **Shading of Colours in Production of Ceramic Wares – Reasons of Formation**
P. Janusz, L. Jerzy; AGH University of Science and Technology, Poland

11:00 - 11:15
S16-031 **Solar Reflectance of Glazes for Exterior Wall Tiles**
T. Susiygma, H. Kakiuchida, K. Kusumoto, H. Nagae, M. Ohashi; National Institute of Advanced Industrial Science and Technology, Japan

11:15 - 11:30
S16-032 **Effect of the Chemical Composition on the Pyroplastic Deformation of Sanitaryware Porcelain Body**
D. Y. Tunçel[1], M. K. Kara[2], E. Özel[1]; [1]Anadolu University, Turkey, [2]Organize Deri Sanayi Bölgesi, Turkey

11:30 - 11:45
S16-033 **Clays Suitable for Manufacturing Sanitaryware and Ceramics: The Rheological and Mechanical Propeties**
F. Gridi-Bennadji, G. Lecomte-Nana, J.-P. Bonnet, S. Rossignol; GEMH, ENSCI Limoges, France

11:45 - 12:00
S16-034 **Elaboration of a Clay-based "Heliothermal" Material**
G. L. Lecomte-Nana, P.-H. Largillière, G. Lecomte; GEMH, ENSCI Limoges, France

13:15 - 14:00: Cements

Chair: Kenji Ogawa (Taiheiyo Cement Corporation, Japan)

13:15 - 13:45
S16-035 **Technology for Quality Control of the Cement Highly Utilized Waste Materials -The Present State of Cement in Japan- (Invited)**
K. Asaga; Teikyo University of Science, Japan

13:45 - 14:00
S16-036 **Rheological Property of Self-Leveling Underlayments Based on Portland Cement, Aluminate Cement and Anhydrite**
S. Jinawath, S. Jiemsirilers, T. Tawong; Chulalongkorn University, Thailand

14:00 - 15:00: Refractories: Sintering

Chair: Tomohiro Nishikawa (Okayama Ceramics Research Foundation, Japan)

14:00 - 14:30
S16-037 **Fabrication and Characterization of Complex Carbide in the System Al-Si-C (Invited)**
S. Hashimoto, T. Umeda, S. Honda, Y. Iwamoto; Nagoya Institute of Technology, Japan

14:30 - 14:45
S16-038 **Sintering and Properties of Calcia/Yttria Composites**
W. Dai[1], X. Wang[1], D. Zhang[2], D. Sun[3], J. Ye[4], J. Yu[1]; [1]Northeastern University, China, [2]Northern Engineering and Technology Co. Ltd., China, [3]Dongfang Electric Machinery Co. Ltd., China, [4]Jiangyin Xingcheng Special Steel Works Co. Ltd., China

14:45 - 15:00
S16-039 **Sintering Mechanism of $Al_8B_4C_7$ Produced by Oxide Raw Material**
H.-X. Zhu, C. Pan, C.-J. Deng, W.-J. Yuan; Wuhan University of Science and Technology, China

15:00 - 15:15 **Break**

15:15 - 16:00: Refractories: Microwave Technology

Chair: Shinobu Hashimoto (Nagoya Institute of Technology, China)

15:15 - 15:45

S16-040 **Microwave Drying of Al_2O_3-MgO Pre-cast Blocks (Invited)**
H. Taira; Nippon Steel Corporation, Japan

15:45 - 16:00

S16-041 **Neck Growth Kinetics of Spherical Shaped WC Particles During Microwave Sintering**
D. Demirskyi[1,2], D. Agrawal[1], A. Ragulya[2]; [1]The Penn. State University, USA, [2]Frantsevich Institute for Problems in Materials Science, NASU, Ukraine

16:00 - 17:00: Refractories: New Synthesis

Chair: Wenbin Dai (Northeastan University, China)

16:00 - 16:15

S16-042 **Effect of Pore-forming Agent on Porous Reaction-bonded Silicon Nitride Ceramics**
L. Yuan[1], J. Yu[1], S. Zhang[2]; [1]Northeastern University, China, [2]University of Sheffield, U.K.

16:15 - 16:30

S16-043 **Molten Salt Synthesis of a New Type of Heat Insulation Material**
C.-J. Deng, L. Zhou , H.-X. Zhu, J. Ding, W.-J. Yuan; Wuhan University of Science and Technology, China

16:30 - 16:45

S16-044 **Preparation of Nanocrystalline Magnesium Aluminate Spinel Powder by Thermal Explosion Mode of LCS**
Z. Yan, J. Yu; Northeastern University, China

16:45 - 17:00

S16-045 **Preparation of Magnesium Carbonate Whisker from Magnesite Tailings**
N. Wang[1], M. Chen[1], H. Ni[2]; [1]Northeastern University, China, [2]Wuhan University of Science and Technology, China

Poster Session

Monday, November 15

Room: Event Hall

12:00 - 14:00

S16-P001 **Processing of Microporous Insulation Materials with Layered Structure**
J.-H. Eom[1], Y.-W. Kim[1], D.-H. Jeong[2], S.-S. Lee[2]; [1]University of Seoul, Korea, [2]Research Institute of Industrial Science & Technology, Korea

S16-P002 **Contribution of Various Preparing Methods of Starting Powders and Sintering to the Development of Mullite – ZrO_2 Ceramics**
G. Sedmale, I. Sperberga, A. Hmelov, I. Steins; Riga Technical University, Latvia

S16-P003 **Effect of Mg Addition on Phase Composition, Microstructure and Properties of Al_2O_3-C Material**
X. Liu[1], Y. Luo[2], J. Xie[1], Z. Wei[2]; [1]Zhengzhou University, China, [2]Boma Refractories Group, China

S16-P004 **Effect of Addition of Non-oxides on the Slag Corrosion Resistance of MgO-Al_2O_3 Refractories**
K. Morita, S. Sakida, Y. Benino, T. Nanba; Okayama University, Japan

S16-P005 **Corrosion Behavior of Reaction Bonded Si_3N_4-SiC Ceramics in Molten Aluminum Casting Alloy**
M. Wada, K. Kashiwagi, D. Yokoe, S. Kitaoka; Japan Fine Ceramics Center, Japan

Symposium 16

S16-P006 Effect of Particle Size Distribution on Alumina-based Castable Refractories
J. M. Zhao[1], Z. X. Yang[1], K. H. Hwang[1], B. S. Jun[2], D. S. Bae[3], S. S. Lee[4], D. H. Jeong[4]; [1]Gyeongsang Nat'l University, Korea, [2]Kyungnam Univ., Korea, [3]Changwon Nat'l Univ., Korea, [4]RIST, Pohang, Korea

S16-P007 Manufacturing of Ceramic Tiles with Polishing Porcelain Stoneware Residues
C.-S. Hsi, T.-H. Wu, S.-Y. Tang; National United University, Taiwan

S16-P008 Preparation of Porcelain Tile from Iranian Raw Materials
H. Mafi[1], N. Mousavi[1], M. Montazerian[1], V. Bertollo[2]; [1]Apadana Ceram Company, Iran, [2]Sacmi Imola S. C., Italy

S16-P009 Passive Cooling Effect of RC Roof Covered with the Ceramics Having High Water Retention and Evaporation Capacity
M. Yamazaki[1], M. Kanaya[1], T. Shimazu[1], T. Ohashi[1], N. Kato[2], T. Horikoshi[2]; [1]INAX Corporation, Japan, [2]Nagoya Institute of Technology, Japan

S16-P010 Comparative Study of the Illite Clay and Illite-Based Geopolymer Products
G. Sedmale[1], I. Sperberga[1], Ç. Stinkulis[2], K. Zeila[1]; [1]Riga Technical University, Latvia, [2]University of Latvia, Latvia

S16-P011 Treatment of Scumming Effects of Pottery Clay by Sodium Carbonate Addition
T. Wasanapiarnpong, A. Thueploy, S. Nilpairach, D. Arayaphong; Chulalongkorn University, Thailand

S16-P012 Lightweight of Bone China Tableware through Micro Balloon Pore Generation
H.-S. Choi, J.-H. Pee, W.-S. Cho, K.-J. Kim; KICET, Korea

S16-P013 Development of Low-Temperature Sintering Stoneware Bodies
K. Kusumoto, T. Sugiyama; National Institute of Advanced Industrial Science and Technology, Japan

S16-P014 Synthesis, and Optical and Structural Characterization of Ceria-related Powders
M. Amimoto, M. Ozawa; Nagoya Institute of Technology, Japan

S16-P015 Formation and Catalytic Activity of Ceria Catalyst on Ceramic Honeycomb Substrare
H. Yuzuriha, K. Ryoji, M. Haneda, M. Ozawa; Nagoya Institute of Technology, Japan

S16-P016 Investigation Of Refractory Lining Failure In A Caustic Incinerator
M. K. Maity[1], E. S. Al-Zahrani[1], F. A. Habiby[2], R. Yin[2]; [1]Sabic Technology Centre - Jubail, Saudi Arabia, [2]Petrokemya, Saudi Arabia

Symposium 17: Health and Safety Aspects of Ceramic Nanoparticles

Main Organizers
- Sylvia Johnson, NASA Ames Research Center, USA
- Steve Freiman, Freiman Consulting, USA
- Gary Fischman, Future Strategy Solutions, USA
- Fumio Watari, Hokkaido University, Japan

Co-Organizers
- Lang Tran, Institute of Occupational Medicine, Scotland
- Akio Makashima, Japan Advanced Institute of Science and Technology (JAIST), Japan
- Christian Hoffman, EPCOS, Austria
- Kamal Hossain, National Physical Laboratory (NPL), UK

Oral Session

Tuesday, November 16

Room: 1203

9:00 - 11:45: Session 1

Chair: Sylvia M. Johnson (NASA Ames Research Center, USA)

9:00 - 9:30
S17-001 **Biointeractive and Bioreactive Nature of Nanoparticles (President - Designated)**
F. Watari; Hokkaido University, Japan

9:30 - 10:00
S17-002 **Challenges and Opportunities in Commercialising Nanostructured Ceramics: An Initial Case Study (Invited)**
J. Binner[1], B. Vaidhyanathan[1], C. Munnings[1], P. Rimmer[2]; [1]Loughborough University, UK, [2]MEL Chemicals Ltd, Manchester, UK

10:00 - 10:30
S17-003 **The Importance of Systemic Nanotoxicological and Toxicokinetic Analysis for Ensuring the Safety of Well-dispersed Amorphous Nanosilicas (Invited)**
T. Yoshikawa[1,2], Y. Tsutsumi[1,2]; [1]Osaka University, Japan, [2]National Institute of Biomedical Innovation, Japan

10:30 - 10:45 **Break**

10:45 - 11:15
S17-004 **Biomedical Applications and Toxicity of Cerium Oxide Nanoparticles – The Need for Controlled Measurements (Invited)**
S. Seal[1], A. S. Karakoti[1], S. Singh[1], S. Hirst[2], C. Reilly[2], W. Self[1]; [1]University of Central Florida, USA, [2]Virginia Polytechnic Institute and State University, USA

11:15 - 11:45
S17-005 **Current Research and Prospect for Health Effects of Nanoparticles on Offspring (Invited)**
M. Umezawa, K. Takeda; Tokyo University of Science, Japan

Symposium 17

14:15 - 17:00: Session 2

Chair: Fumio Watari (Hokkaido University, Japan)

14:15-14:45
S17-006 **Engineered Nanomaterials: Application Potential and Toxicity Issues (Invited)**
S. Mathur, L. Xiao, S. Stucky, O. Arslan, D. Herrmann, B. Mueller, T. Fischer; University of Cologne, Germany

14:45 - 15:00
S17-007 **Ensuring Safe Handling of Nanoscale Materials in a Research Laboratory Setting**
J. Koehne[1], A. Cassell[2], D. Kaye[1], D. Loftus[1], M. Oye[2], S. Phillips[1], D. Prohaska[1], S. Sethna[1], P. Wilhite[3]; [1]NASA Ames Research Center, USA, [2]ELORET Corp., USA, [3]Santa Clara University, USA

15:00-15:15
S17-008 **Microwave Hazards on Heme-proteins with Carbon Nanotubes. Thermal and Redox Chemistry**
T. Nakashima, H. Horiguchi, H. Ohe, K. Kato, M. Sano; Yamagata University, Japan

15:15-15:45
S17-009 **Various Effects of Fullerene and Its Derivatives on The Development and Functions in Rodent Embryos and The Adult Animals (Invited)**
T. Tsuchiya; National Institute of Health Sciences, Japan

15:45 - 16:00 **Panel Discussion and ICF Committee Meeting**

16:00 - 16:15 **Break**

16:15 - 17:00 **Panel Discussion and ICF Committee Meeting**

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 - 14:00

S17-P001 **Efficient Screening of Nanotoxicity Using Vesicle and E.coli**
S. Jee, S. Shin, Y. Kim; Kwangwoon University, Korea

S17-P002 **Toxicity Test of Various Nanoparticles by Fluorescent-dye Contained Vesicle**
H. N. Umh, S. Shin, Y. Kim; Kwangwoon University, Korea