

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

- İlhan 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, Switzerland
- 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. Kakahana¹, M. Kobayashi¹, T. Q. Duc¹, H. Kato¹, V. Petrykin², K. Tomita³; ¹Tohoku University, Japan, ²J. Heyrovsky Institute of Physical Chemistry, Czech Republic, ³Tokai 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. Wada¹, T. Goto¹, S. Iwatsuki¹, M. Kera¹, I. Fujii¹, K. Nakashima¹, Y. Kuroiwa²; ¹University of Yamanashi, Japan, ²Hiroshima University, Japan

15:30 - 15:45

S3-004 Selective Growth of Monoclinic and Tetragonal Zirconia Nanocrystals

K. Sato¹, H. Abe², S. Ohara²; ¹Gunma University, Japan, ²Osaka University, Japan

Symposium 3

15:45 - 16:00

S3-005 High Spatial Resolution SIMS Analysis for Characterization of Ceramics

H. Haneda^{1,2}, I. Sakaguchi¹, N. Saito¹, K. Matsumoto², K. Watanabe¹, M. Inada², J. Hojo², N. Ohashi^{1,2}; ¹National Institute for Materials Science, Japan, ²Kyushu 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. Kato¹, F. Dang¹, H. Imai², S. Wada³, H. Haneda⁴, M. Kuwabara⁵; ¹National Institute of Advanced Industrial Science and Technology, Japan, ²Keio University, Japan, ³Yamanashi University, Japan, ⁴National Institute for Materials and Science, Japan, ⁵Kyushu 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. Li¹, M. Osada^{1,2}, T. C. Ozawa^{1,2}, R. Ma^{1,2}, K. Akatsuka¹, Y. Ebina^{1,2}, H. Funakubo³, T. Sasaki^{1,2}; ¹National Institute for Materials Science, Japan, ²Japan Science and Technology Agency, Japan, ³Tokyo Institute of Technology, Japan

17:30 - 17:45

S3-009 Formation and Characteristics of Anatase-Type Titania Solid Solution Nanoparticles Doped with Nb⁵⁺ and M (M=Ga³⁺, Al³⁺, Sc³⁺)

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 University, 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. Daiko¹, K. Katagiri², H. Muto³, T. Yazawa¹, A. Matsuda³; ¹University of Hyogo, Japan, ²Nagoya University, Japan, ³Toyohashi University of Technology, Japan

9:15 - 9:30

S3-012 The Synthesis, Characterization and Mechanical Properties of Al₂O₃/ZrO₂ Nanocrystalline Powders by Supercritical CO₂ Method

H. Gocmez¹, M. Tuncer¹, O. Sahin², I. Uzulmez¹; ¹Dumlupinar University, Turkey, ²Mustafa 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}; ¹University of Tsukuba, Japan, ²National Institute for Materials Science, Japan, ³Japan 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. Satake¹, M. Tajika¹, S. Kuwamoto³, K. Yokoyama³, J. Matsui³, T. Issiki⁴, N. Umesaki^{2,5}, ¹Shiraishi Central Laboratories Co. Ltd., Japan, ²Kobe University, Japan, ³Hyogo Science and Technology Association, Japan, ⁴Kyoto Institute of Technology, Japan, ⁵Japan Synchrotron Radiation Research Institute, Japan

11:00 - 11:15

S3-018 Coating of Nano ZrB₂ on Cu Substrate Using Roll-Milling Process
 U. Olgun¹, H. Gocmez², S. Okur³; ¹Sakarya University, Turkey, ²Dumlupinar University, Turkey, ³Izmir 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. Yoshimura^{1,2}; ¹Tokyo Institute of Technology, Japan, ²National 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-Structured Ferroelectrics Prepared by High Magnetic Field and a Subsequent Reaction Sintering in Rotating Magnetic Field (Invited)
S. Tanaka¹, T. Kimura¹, R. Furushima¹, H. Shimizu², Y. Doshida², K. Uematsu¹; ¹Nagaoka University of Technology, Japan, ²Taiyo 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

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S3-024 Control 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. Nagata¹, A. Matsuyama¹, K. Mizuno¹, Y. Hotta², K. Sato², M. Higuchi¹, T. Kinoshita¹, K. Watari²; ¹Nagoya Institute of Technology, Japan, ²National 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. Hai¹, M. Fuji¹, F. Wang², H. Watanabe¹, T. Shirai¹, I. Yamada¹, M. Takahashi¹; ¹Nagoya Institute of Technology, Japan, ²Beijing University of Chemical Technology, China

16:45 - 17:00

S3-028 Inner Surface Coating of Non-Conductive Tubular Substrate Using Electrophoretic Deposition
L. Kreehawate¹, S. Larpkiattaworn², S. Jiemsirilers¹, T. Uchikoshi³; ¹Chulalongkorn University, Thailand, ²Thailand Institute of Scientific and Technological Research, Thailand, ³National Institute for Materials Science, Japan

17:00 - 17:15

S3-029 Preparation and Evaluation of TiO₂ Nanoparticle Thin Films Deposited 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 Transformation And Nanofilm Fabrication of Layered Hydroxide Hexagonal Platelet Crystals (Invited)
R. Ma¹, J. Liang¹, L. Hu^{1,2}, M. Osada¹, T. Sasaki^{1,2}; ¹National Institute for Materials Science, Japan, ²University of Tsukuba, Japan

9:45 - 10:00

S3-033 Nanocomposites Synthesized via Restacking of the Nanosheets Exfoliated from Inorganic 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. Malunagnont¹, K. Gotoh², M. M. Lerner¹; ¹Oregon State University, USA, ²Okayama 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 Efficient 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. Sato¹, K. Tamura², A. Yamagishi³; ¹Ehime University, Japan, ²National Institute for Materials Science, Japan, ³Toho 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. Paineau¹, K. Antonova², C. Baravian¹, I. Bihannic¹, P. Davidson³, I. Dozov², F. Meneau⁴, L. J. Michot¹; ¹Nancy University, France, ²Bulgarian Academy of Sciences, Bulgaria, ³Université Paris-Sud, France, ⁴SOLEIL Synchrotron Facility, France

13:45 - 14:15

S3-040 Colloidal System of Semiconducting Oxide Nanosheets: Liquid Crystalline Behavior and Photochemical 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

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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}; ¹National Institute for Materials Science, Japan, ²Japan Science and Technology Agency, Japan, ³Shinshu 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 RuO₂-based Nanocrystalline Electrocatalytic Materials Prepared by Advanced Solution Methods

V. Petrykin¹, P. Krtil¹, M. Okube², K. Macounova¹, J. Franc¹; ¹Academy of Sciences of Czech Republic, Czech Republic, ²Tokyo 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. Shibata¹, Y. Ebina¹, T. Ohnishi¹, K. Takada¹, T. Kogure², T. Sasaki¹; ¹National Institute for Materials Science, Japan, ²The 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}; ¹National Institute for Materials Science, Japan, ²Japan 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. Duran¹, M. Sopicka-Lizer², H. Göçmez³, T. Pawlik², M. Mikuskiewicz², K. MacKenzie⁴; ¹Gebze Institute of Technology, Turkey, ²Silesian University of Technology, Poland, ³Dumlupınar University, Turkey, ⁴Victoria 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 B₄C Particles by Pulsed Laser Irradiation of B in Liquid Media Under Low Fluence Condition

Y. Ishikawa¹, N. Koshizaki²; ¹Kagawa University, Japan, ²National Institute of Advanced Industrial Science and Technology, Japan

10:00 - 10:15

S3-053 Fabrication and Evaluation of CNT Dispersed Si₃N₄ 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 University, 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. Pillai¹, A. Hadjiafrenti¹, T. Ando², C. C. Doumanidis¹, C. Rebholz²; ¹University of Cyprus, Cyprus, ²Northeastern 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. Nourbakhsh², R. J. Kalbasi², S. Naghibi², F. Golestani-Fard³; ¹Islamic Azad University, Iran, ²Iran 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

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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}; ¹The University of Melbourne, Australia, ²Australian Nuclear Science and Technology Organisation, Australia, ³Defence Materials Technology Centre, Australia

14:30 - 14:45

S3-063 Relation between Flow Property and Packing Property of Dense Slurry

K. Asai¹, T. Mori¹, JI. Tsubaki¹, H. Ohtsuka²; ¹Nagoya University, Japan, ²NGK 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. Zamorategui¹, S. Sugita¹, K. Uematsu²; ¹Guanajuato University, Mexico, ²Nagaoka 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. Motai², S. Kawasumi², H. Kamiya¹; ¹Tokyo University of Agriculture and Technology, Japan, ²Toho Titanium Co., Ltd.

15:45 - 16:15

S3-067 Polymer Mediated Interaction Forces between Alumina Surfaces (Invited)

K. Sato¹, H. Yilmaz^{1,2}, Y. Hotta¹, K. Watari¹; ¹National Institute of Advanced Industrial Science and Technology, Japan, ²Gebze Institute of Technology, Turkey

16:15 - 16:30

S3-068 Ceramic Paste for Injection Molding Process

S. Murakami¹, K. Ri¹, W. Shin¹, T. Itoh¹, I. Matsubara¹, Y. Takahashi², Y. Ando²; ¹National Institute of Advanced Industrial Science and Technology, Japan, ²Noritake Co., Limited, Japan

Poster Session

Tuesday, November 16

Room: Event Hall

12:00 -14:00

S3-P001 Hybrid Solvothermal Synthesis of CuInSe₂ 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. Chen¹, M. Tang²; ¹National Taiwan University, Taiwan, ²Chinese 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 Synthesis 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 TiO₂-SnO₂ 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. Zhu¹, Y. Zhang¹, N. Yao¹, D. Kong², Y. Tao¹, T. Qiu¹; ¹Nanjing University of Technology, China, ²Jiangsu Gaochun Ceramics Co. LTD., China
- S3-P009 Peptide-assisted Preparation of Silica Nano Particles and Their Application for Biomolecule Encapsulation**
K. Kato¹, M. Nishida¹, T. Nonoyama², T. Kinoshita²; ¹National Institute of Advanced Industrial Science and Technology, Japan, ²Nagoya 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. Obata¹, H. Yokoyama¹, Y. Iwata¹, K. Tateishi¹, M. Yoshida², O. Sakurada², M. Hashiba²; ¹Gifu Prefectural Ceramics Research Institute, Japan, ²Gifu University, Japan
- S3-P012 The Effect of Temperature on the Synthesis of Nano-whiskers of Calcium Mephosphate by Chemical Precipitation Methods**
N. Yao¹, Y. Zhang¹, J. Zhu¹, D. Kong², Z. Pan¹, T. Qiu¹; ¹Nanjing University of Technology, China, ²Jiangsu Gaochun Ceramics Co. LTD., China
- S3-P013 Mechanochemical Stabilization of Nanocrystalline the (ZrO₂)_{0.97}(Y₂O₃)_{0.03} Solid Solution from Pure Oxides**
N. M. Rendtorff^{1,2}, G. Suarez^{1,2}, E. F. Aglietti^{1,2}; ¹Centro de Tecnología de Recursos Minerales y Cerámica, Argentina, ²Universidad Nacional de La Plata, Argentina
- S3-P014 The Role of Hydrogen on Silicon Nitride Prepared by Self-propagating High-temperature Synthesis**
M. Xia¹, C. Ge^{1,2}, Q. Yan², Y. Xu¹; ¹Southwest Jiaotong University, China, ²University 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 PbTiO₃ Nanocrystal Array on Atomically Flat Sapphire**
T. Nishida¹, Y. Yoneda², K. Tamura², H. Kimura³, M. Horita¹, K. Asahi¹, Y. Ishikawa¹, Y. Uraoka^{1,4}; ¹Nara Institut of Science Technology, Japan, ²JAEA, Japan, ³National Institute for Materials Science, Japan, ⁴CREST, Japan
- S3-P017 Fabrication of SOFC Composed of LaGaO₃ Based Solid Electrolyte and Ceria Based Buffer Layer by EPD**
H. T. Suzuki^{1,2}, T. Uchikoshi², K. Kobayashi², T. S. Suzuki², K. Furuya³, M. Matsuda⁴, Y. Sakka², F. Munakata¹; ¹Tokyo City University, Japan, ²National Institute for Materials Science, Japan, ³AGC Seimi Chemical Co., Ltd., Japan, ⁴Kumamoto University, Japan
- S3-P018 Plasma Processed Nanosize Powders of Refractory Compounds for Obtaining of Fine-Grained Advanced Ceramics**
I. Zalite¹, J. Grabis¹, E. Palcevskis², M. Herrmann³; ¹The Riga Technical University, Latvia, ²“Plasma & Ceramic Technologies” Ltd., Latvia, ³The Fraunhofer Institute for Ceramic Technologies and Systems, Germany



Symposium 3

- S3-P019 Preparation of Alumina Nanoparticles by Pulsed Wire Discharge in Water**
Y. Tokoi¹, Y. Izuari², T. Orikawa², T. Suzuki², T. Nakayama², H. Suematsu², K. Niihara²; ¹Nagaoka National College of Technology, Japan, ²Nagaoka 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. Moreira², D. P. Volante^{2,3}, S. R. Teixeira^{1,2}, E. Longo^{2,3}; ¹Universidade Estadual Paulista, Brazil, ²Instituto Nacional de Ciência e Tecnologia dos Materiais em Nanotecnologia, Brazil, ³Universidade Estadual Paulista, Brazil
- S3-P021 Synthesis and Evaluation of Barium Titanate by Rotary-Hydrothermal Process**
Y. Takamatsu¹, M. Sato², A. Nakahira¹; ¹Osaka Prefecture University, Japan, ²Tohoku 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. Muto¹, N. Hakiri¹, K. Katagiri², G. Kawamura¹, A. Matsuda¹, M. Sakai¹; ¹Toyohashi University of Technology, Japan, ²Nagoya University, Japan
- S3-P025 Dispersion of Nanoparticles Using Novel Wet Pulverizer Utilized Supersonic Jet Flow**
T. Makino¹, K. Shuzenji¹, H. Hata², T. Morimitsu³, T. Kato³; ¹Fukuoka Industrial Technology Center, Japan, ²Kumamoto University, Japan, ³RIX Corporation, Japan
- S3-P026 Effect of Milling Process on Molding of Alumina**
T. Nagaoka¹, H. N. Yoshimura^{1,2}, K. Sato¹, Y. Hotta¹, H. Kita¹; ¹National Institute of Advanced Industrial Science and Technology, Japan, ²Federal 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 Zn₂Ti₃O₈ Nanocrystallite Powders Prepared by a Hydrothermal Process**
C.-L. Wang¹, K.-M. Chang¹, M.-C. Wang², H.-H. Ko², D.-T. Ray³, H.-H. Huang⁴; ¹National Kaohsiung University of Applied Sciences, Taiwan, ²Kaohsiung Medical University, Taiwan, ³National Cheng Kung University, Taiwan, ⁴Cheng 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. Sato¹, H. Yilmaz^{1,2}, Y. Hotta¹, K. Watari¹; ¹National Institute of Advanced Industrial Science and Technology, Japan, ²Gebze Institute of Technology, Turkey