

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. Nakanishi¹, R. Ito¹, K. Morisato^{1,2}; ¹Kyoto University, Japan, ²GL Sciences Inc., Japan

15:15 - 15:30

S2A-003 Hierarchically Macro/mesoporous Al₂O₃ Monolith Via a Facile Sol-Gel Process Accompanied by Phase-Separation

K. Zhang^{1,2}, Z. Fu¹, W. Wang¹, H. Wang¹, T. Nakayama², H. Suematsu², T. Suzuki², K. Niihara², L. Soowohn³; ¹Wuhan University of Technology, China, ²Nagaoka University of Technology, Japan, ³SunMoon 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. Ruzimuradov¹, R. Takahashi²; ¹National University of Uzbekistan, Uzbekistan, ²Ehime 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. Kaper¹, F. Goettmann¹, P. Makowski¹, F. Schüth²; ¹Centre de Marcoule, France, ²Max-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. Bonhomme¹, F. Babonneau¹, G. Arrachart², M. W. C. Man²; ¹UPMC, France, ²Institut 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. Miyata¹, W. Kubo¹, T. Noma¹, S. Kobori², K. Kuroda²; ¹Canon Inc., Japan, ²Waseda 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. Oveisi¹, Y. Yamauchi^{1,2,3}; ¹National Institute for Materials Science, Japan, ²Waseda University, Japan, ³Japan 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. Khan¹, M. A. Ibrahim¹, M. Al-hoshan¹, M. Al-salhi¹; ¹King Saud University, Saudi Arabia, ²CMRDI, Egypt

11:30 - 11:45

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

C. Gérardin¹, J. Reboul¹, N. Baccile¹, J. Warnant^{1,2}, C. Jérôme², P. Lacroix-Desmazes¹, M. In³; ¹Institut Charles Gerhardt Montpellier, France, ²University of Liege, Belgique, ³Université 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 Ti³⁺ Defects in Anatase-Stabilized Titanium Dioxide

Y. Ono^{1,2}, T. Rachi¹, T. Okuda¹, M. Yokouchi¹, Y. Kamimoto¹, A. Nakajima², K. Okada²; ¹Kanagawa Industrial Technology Center, Japan, ²Tokyo 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 SrTiO₃

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. Guo¹, Y. Ando¹, S. Yin¹, K. Adachi², T. Chonan², T. Sato¹; ¹Tohoku University, Japan, ²Sumitomo Metal Mining Co., Ltd, Japan

15:45 - 16:00

S2A-023 Emulsion Assisted Hydrothermal Synthesis of Four Polymorphs of TiO₂ from Water-Soluble Titanium Complexes

K. Yamamoto¹, K. Tomita^{1,2}, Y. Miura¹, I. Mikami¹, M. Kakihana²; ¹Tokai University, Japan, ²Tohoku 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 H₂

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. Innocenzi¹, C. Figus¹, M. Takahashi²; ¹Università di Sassari and CR-INSTM, Italy, ²Osaka Prefecture University, Japan

17:30 - 17:45

S2A-028 Preparation of Shape-controlled CeO₂ Nanocrystals

F. Dang¹, K. Kato¹, 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 Science, Japan, ⁵Kyushu 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. Epifani¹, T. Andreu^{2,3}, S. Abdollahzadeh-Ghom³, J. Arbiol⁴, J. R. Morante^{2,3}; ¹CNR-IMM, Italy, ²Institut de Recerca en Energia de Catalunya, Spain, ³Universitat de Barcelona, Spain, ⁴CSIC, 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 BaTiO₃ 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})O₃ 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. Ming¹, L. Hong^{1,2}, S. W. Tay², L. Yang¹; ¹National University of Singapore, Singapore, ²Institute 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 (TiO₂) 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. Jia¹, H. M. Luo¹, G. F. Zou¹, A. K. Burrell¹, T. M. McCleskey¹, E. Bauer¹, H. Wang²; ¹Los Alamos National Laboratory, USA, ²Texas A&M University, USA

14:15 - 14:30

S2A-042 Sol-gel Synthesis and Characterization of Na_{0.5}Bi_{0.5}TiO₃-NaTaO₃ 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 (C₆H₅)SiO_{3/2}-SiO₂ 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. Kato¹, C. Hosokawa^{1,2}, T. Taguchi^{1,2}; ¹National Institute of Advanced Industrial Science and Technology, Japan, ²Core 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. Pee¹, E.-Y. Park¹, W.-S. Cho¹, K.-J. Kim¹, J. K. Lee²; ¹KICET, Korea, ²DaeHan Ceramics Co., Ltd., Korea

S2A-P002 Sol-gel Synthesis of Nanocrystalline LaF₃ 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 SiO₂ Composite Membranes by a Reverse Micelle and Sol-Gel Processing

M. Y. Lee¹, J. H. Son¹, K. H. Hwang², D. S. Bae¹; ¹Changwon National University, Korea, ²Gyeongsang National Univ., Korea

S2A-P004 Synthesis of Borate Compounds by New Polyamide-type Polymerizable Complex Method

Y. Matsumoto¹, K. Tomita^{1,2}, Y. Sekine¹, M. Kakahana²; ¹Tokai University, Japan, ²Tohoku University, Japan

S2A-P005 Synthesis and Piezoelectric Properties Nd₂O₃-doped BaTiO₃-Bi_{0.5}(Na, K)_{0.5}TiO₃ by a Novel Composite-hydroxide-mediated Approach

T. Kimura¹, S. Yin¹, T. Hashimoto², Y. Tokano², A. Sasaki², T. Sato¹; ¹Tohoku University, Japan, ²NEC 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. Yamamoto¹, M. Hagiwara², S. Shiraishi²; ¹Akita University, Japan, ²Mitsubishi Materials Electric Chemicals Co., Japan

- S2A-P008 Influence on NIR Shielding Property by Morphology and Chemical Composition of Cs_xWO_3**
Y. Ando¹, C. Guo¹, S. Yin¹, T. Sato¹, K. Adachi², T. Chonan²; ¹Tohoku University, Japan, ²Sumitomo 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. Kohirumaki; Hachinohe Institute of Technology, Japan
- S2A-P011 Influence of the Various Factors on Sol-Gel Process of Obtaining Nanocomposite Aminofunctional Sorption Materials**
D. S. Shakarova¹, N. Hüsing²; ¹Tashkent State Technical University, Uzbekistan, ²Ulm University, Germany
- S2A-P012 Gallium Substituted Bismuth Iron Garnet Prepared by MOD Technique for the Magneto-optical Imaging**
N. Adachi^{1,2}, K. Yogo¹, T. Ota¹, M. Takahashi^{2,3}, K. Ishiyama²; ¹Nagoya Institute of Technology, Japan, ²Tohoku University, Japan, ³Taiyo 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. Yamagata¹, S. R. H. Mello Castanho¹, N. B. Lima¹, J. R. Matos²; ¹Instituto de Pesquisas Energeticas e Nucleares, Brazil, ²Instituto de Quimica-Universidade de Sao Paulo, Brazil
- S2A-P014 Magnetic Properties of TCr_2O_4 (T = Co, Ni) Fine Powders and $TCr_2O_4SiO_2$ 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. Roongtao¹, S. Rugmai², W. C. Vittayakorn¹; ¹Chiang Mai University, Thailand, ²National 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. Vejpravová², J. Plocek¹, I. Nemeč², D. Niznansky^{1,2}; ¹Institute of Inorganic Chemistry of the ASCR, Czech republic, ²Charles 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. Salari¹, M. Montazerian¹, S. Baghshahi²; ¹Apadana Ceram Company, Iran, ²Imam 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 RbLaNb₂O₇ 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 Ta₂O₅ Films Prepared by Sol-Gel Method**
K. Otoizumi¹, C. Yogi¹, N. Wada², K. Kojima¹; ¹Ritsumeikan University, Japan, ²Suzuka 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. Takahashi¹, M. Ohsawa², K. Nakamura², H. Unuma¹; ¹Yamagata University, Japan, ²Nitto Boseki Co. Ltd., Japan
- S2A-P028 Preparation and Microstructural Study of Sol-gel 8YSZ Thin Films for SOFCs Applications**
N. Mirkazemi¹, A. Maghsoudipur², M. Tamizifar³, S. Baghshahi⁴; ¹Science & Research Campus Islamic Azad University, Iran, ²Materials & Energy Research Center, Iran, ³Iran University of Science & Technology, Iran, ⁴Imam Khomeini International University, Iran
- S2A-P029 Hydrothermal Soft Chemical Synthesis of TiO₂ Nanocrystals from Layered Titanate H₂Ti₃O₇ Nanosheets**
Y. Ikeuchi, Y. Ishikawa, Q. Feng; Kagawa University, Japan
- S2A-P030 Environmentally Friendly Growth of Layered Alkali Titanate Crystals for Water Purifier**
M. Kiyohara¹, K. Teshima¹, H. Kamikawa², S. H. Lee¹, S. Oishi¹; ¹Shinshu University, Japan, ²YAMAHA MOTOR CO., LTD., Japan
- S2A-P031 Preparation of Cellulose Nanofibers-Silica Laminate Hybrid Films for Transparent Gas-Barrier Coatings**
K. Aoyama¹, K. Katagiri¹, K. Koumoto¹, H. Fukuzumi², T. Saito², A. Isogai²; ¹Nagoya University, Japan, ²The 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. Fukushima¹, Y. Kanno¹, H. Miyata², K. Kuroda¹; ¹Waseda University, Japan, ²Canon Inc., Japan
- S2A-P034 Preparation and Hydrophilization of Alumina Films using Fibrous Sols with a High Aspect Ratio**
K. Hashimoto¹, M. Shinmura¹, T. Nishide¹, N. Nagai², Y. Hakuta³, F. Mizukami³; ¹Nihon University, Japan, ²Kawaken Fine Chemicals Co., Ltd., Japan, ³National 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)O₄:Eu Phosphors Synthesized by Solution Combustion Method**
M. H. Heo¹, Y. Kim², K. Park¹; ¹Sejong University, Korea, ²Dankook University, Korea
- S2A-P036 Preparation of Ce³⁺-Doped (Y, Gd)₃Al₅O₁₂ 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. Tsai¹, Y.-F. Lu², P.-J. Tsai², J.-M. Wu¹; ¹National Formosa University, Taiwan, ²National Chung Hsing University, Taiwan
- S2A-P038 Preparation of La (Nb,Ta) O₄ 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. Tsai¹, F.-H. Lu², J.-M. Wu¹, Y.-K. Wang²; ¹National Formosa University, Taiwan, ²National Chung Hsing University, Taiwan
- S2A-P040 Synthesis and Photoluminescence Properties of Al-O Ceramics Obtained by a Sol-Gel Method**
K. Arita¹, N. Sawaguchi¹, H. Inano², M. Sasaki¹; ¹Muroran Institute of Technology, Japan, ²Hokkaido 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 Yb³⁺ Doped GdPO₄ 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 ≤ x ≤ 1.0) Phosphors Synthesized by Ultrasonic Spray Pyrolysis under VUV Excitation**
K. Y. Kim¹, M. H. Heo¹, Y. Kim², K. Park¹; ¹Sejong University, Korea, ²Dankook University, Korea
- S2A-P044 Study on Luminescence Properties of BaAl₁₂O₁₉:Tb,Dy Phosphor Prepared by Sol-gel Method**
Y. Xie¹, L. Xiao¹, M. He², W. Yu¹; ¹Shenyang University of Chemical Technology, China, ²Shenyang 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 SnO₂ Powders by Solvothermal Process**
D. H. Lee¹, M. C. Chu², D. S. Bae¹; ¹Changwon National University, Korea, ²Korea Research Institute of Standards and Science, Korea
- S2A-P047 Synthesis of Stable Sol of TiO₂ Nanoparticles by Heating Ti Alkoxide in NH₃ 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 SrTiO₃ Powders Prepared by Hydrothermal Alkaline Conditions**
J. C. Rendón-Angeles¹, Z. Matamoros-Veloza^{2,3}, K. Yanagisawa³, M. I. Pech-Canul¹, Y. M. Rangel-Hernandez¹; ¹Research Institute for Advanced Studies, Mexico, ²Technological Institute of Saltillo, Mexico, ³Kochi 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 Na₂SiO₃ Solution**
C. Yamagata¹, S. R. H. Mello Castanho¹, J. R. Matos²; ¹Instituto de Pesquisas Energeticas e Nucleares, Brazil, ²Instituto 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 SnO₂ Nanocrystals**
T. Anzai, Y. Oaki, H. Imai; Keio University, Japan



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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. Mahmmed¹, O. Heczko², O. Söderberg¹, S-P. Hannula¹; ¹Aalto University School of Science and Technology, Finland, ²Academy 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