

Symposium 12: Porous Ceramics for Environmental Protection and Advanced Industries

Main Organizers

- Yuji Iwamoto, Nagoya Institute of Technology, Japan
- Paolo Colombo, Università 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 Universität 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 CO₂ 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 CO₂ Sequestration

C. Popa¹, K. Katsumata¹, T. Isobe¹, N. Matsushita¹, A. Nakajima¹, T. Kurata², K. Okada¹; ¹Tokyo Institute of Technology, Japan, ²Kurata 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. Miao¹, L. F. Su¹, S. Tanemura²; ¹Chinese Academy of Sciences, China, ²Japan 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. Nagata², K. Hirao^{1,2}, T. Ohji², K. Kato²; ¹Nagoya Institute of Technology, Japan, ²National 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 Universität Darmstadt, Germany

10:00 - 10:15

S12-010 Borosilicate Glass Foams with Optimized Properties
J. P. G. Llerenas¹, C. Ohl², M. Kappa², V. Wilker¹, F. Scheffler², M. Scheffler²; ¹Brandenburg Technical University Cottbus, Germany, ²Otto-von-Guericke University, Germany

10:15 - 10:30

S12-011 Fabrication of Ceramics with Hierarchical Porosity from Preceramic Polymers
P. Colombo^{1,2}, C. Vakifahmetoglu¹, J. Woltersdorf², E. Pippel²; ¹University of Padova, Italy, ²Max-Planck-Institut für Mikrostrukturphysik, Germany

10:30 - 10:45 Break

10:45 - 11:45: Advanced Processing Methods for Porous Ceramics III. -Novel Hierarchical Porous Structure Controlling Technologies-

Chair: Philippe Miele (Institut Européen des Membranes 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 Macroscopic Structure Controlling 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. Chen¹, L. Hong^{1,2}, X. Tai¹; ¹National University of Singapore, Singapore, ²Institute 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. Chuanwatanakul¹; ¹University of Melbourne, Australia, ²Defence Materials Technology Centre, Australia

15:45 - 16:00

S12-019 Thermal Conductivity of Silica Aerogels under Vacuum Condition
K. Kugimiya¹, M. Ogawa, H. Matsubara; Japan Fine Ceramics Center, Japan

Wednesday, November 17

Room: 1102

9:00 - 10:30: Porous SiC Ceramics I. -Porous Structure Controlling-

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. Song¹, H.-D. Kim¹, Y.-W. Kim²; ¹Korea Institute of Materials Science, Korea, ²University of Seoul, Korea

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10:15 - 10:30

S12-023 Synthesize of High Surface Area Mesoporous SiC by Using SBA-15/Polyacrylamide Nanocomposite Precursor

A. A. Nourbakhsh¹, M. Hemmatiyan¹, R. J. Kalbasi¹, F. Golestani-Fard²; ¹Islamic Azad University, Iran, ²Iran 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. Latouchet^{1,2}, P. Darcy¹, N. Schmitt^{2,3}, A. Benallal²; ¹RENAULT SAS, France, ²LMT-Cachan, France, ³Université 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. Liu¹, R. Sasai², H. Itoh¹; ¹Nagoya University, Japan, ²Shimane 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. Kumar¹, Y.-H. Choi¹, Y.-W. Kim¹, I.-S. Han², S.-K. Woo²; ¹The University of Seoul, Korea, ²Korea Institute of Energy Research, Korea

13:45 - 14:00

S12-030 Effect of Fillers on Microstructure and Strength of Porous Silicon Carbide

J.-H. Eom¹, B. V. M. Kumar¹, Y.-W. Kim¹, I.-H. Song², H.-D. Kim²; ¹University of Seoul, Korea, ²Korea 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 Microporous 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. Pfeiffer¹, E. Lima¹, J. S. Valente²; ¹Universidad Nacional Autónoma de México, Mexico, ²Instituto 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 TiO₂ Film through Anodic Oxidation of Titanium

Y. Yokogawa, T. Yasuki, T. Hiroto, 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. Hashimoto¹, Y. Ito, H. Hirano², S. Honda¹, Y. Iwamoto¹; ¹Nagoya Institute of Technology, Japan, ²Towa 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. Tuaparakone, 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 University, Japan

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9:30 - 10:00

S12-042 Development of Micro-porous Ceramics as Hydrogen Separation Membranes (Invited)

K. Miyajima^{1,2}, T. Eda¹, A. Masuda¹, B. N. Nair¹, S. Nagaya², Y. Iwamoto³; ¹Noritake Co., Limited, Japan, ²Chubu Electric Power Co., Inc., Japan, ³Nagoya 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/CeO₂ 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 V₂O₅-WO₃-TiO₂ Monolithic Catalysts for High Temperature SCR by NH₃

B. Shin¹, M. Shin^{1,2}, H. Lee¹, D. Shin³, W. Min⁴; ¹Pusan National University, Korea, ²Korea Testing Laboratory, Korea, ³Gyeongsang National University, Korea, ⁴Korea University, Korea

11:30 - 11:45

S12-048 Effect of Baria on γ -Al₂O₃ 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 MgTi₂O₅-Based Composites with Highly-Controlled Pore-Size Distribution: Processing and Mercury Intrusion/Extrusion Analysis

Y. Suzuki¹, M. Morimoto²; ¹Kyoto University, Japan, ²Systemex Corporation, Japan

13:45 - 14:00

S12-051 Fabrication and Mechanical Properties of Porous Composites of Al₂O₃ and ZrO₂ by Microwave Heating

T. Umeda¹, S. Hashimoto¹, K. Hirao², S. Honda¹, Y. Iwamoto¹; ¹Nagoya Institute of Technology, Japan, ²National 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. Honda¹, T. Senda¹, N. Nishihara¹, H. Watanabe², K. Miyajima^{1,2}, S. Hashimoto¹, Y. Iwamoto¹; Nagoya Institute 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. Ishizaki¹, A. Takata², K. Matsumaru¹; ¹Nagaoka University of Technology, Japan, ²Nano-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. Watanabe¹, K. Fujikata², Y. Oaki², H. Imai²; ¹Tokyo Metropolitan Industrial Research Institute, Japan, ²Keio University, Japan
- S12-P002 Dip-Coating Mesoporous TiO₂ Thin Films with 3D-Hexagonal Mesostructure**
Z. Feng, U. Wang, H. Zhou; Xiamen University, China
- S12-P003 Hydroxyapatite/zirconium 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. Majoulet¹, S. Bernard¹, Y. Sugahara², P. Miele¹; ¹Laboratoire des Multimatériaux et Interfaces, France, ²Waseda 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. Choi¹, Y.-W. Kim¹, S.-K. Woo², I.-S. Han²; ¹The University of Seoul, Korea, ²Korea 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. Seo¹, I.-S. Han¹, S. Kim¹, K.-S. hong¹, Y.-J. Hang¹, S.-D. Kim¹, S.-K. Woo¹, B.-K. Jang²; ¹Korea Institute of Energy Research, Korea, ²National 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-Rico¹, C. Torres-Raya¹, J. Martinez-Fernandez¹, R. Wimmer²; ¹Universidad de Sevilla, Spain, ²Wood K Plus, Austria
- S12-P010 Structural Analysis of Metal Doped-Amorphous Silica Membrane for Separation of Hydrogen**
A. Mori¹, K. Hataya^{1,2}, S. Honda¹, Y. Iwamoto¹; ¹Nagoya Institute of Technology, Japan, ²Japan 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 CO₂ Gas Separation**
M. Shimizu, T. Isobe, A. Ooyama, A. Nakajima; Tokyo Institute of Technology, Japan
- S12-P013 CO₂ Absorption Behavior of α -LiFeO₂ Coated on Ceramic Foam**
I. Yanase, K. Otsuka, H. Kobayashi; Saitama University, Japan
- S12-P014 Removal of Harmful Organic Compounds Using SiO₂-TiO₂ 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. Uchikoshi², T. S. Suzuki², Y. Sakka², M. Matsuda¹; ¹Kumamoto University, Japan, ²National 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 Microstructure 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 Precipitation Processes**
R. Kato, M. Haneda, M. Ozawa; Nagoya Institute of Technology, Japan
- S12-P020 Sintering Behavior of Pt Particle in Alumina-supported Catalyst**
T. Watanabe, 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. G6mze¹, L. N. G6mze², . Eg6sz¹, F. Ojima³; ¹University of Miskolc, Hungary, ²IGREX Engineering Service Ltd., Hungary, ³Nagaoka University of Technology, Japan
- S12-P024 Research on the Preparation and Property of Steel Slag-Flyash Porous Glass Ceramics**
 L. Baowei¹, J. Xiaolin^{1,2}, Z. Xuefeng¹; ¹Inner Mongolia University of Science and Technology, China, ²Zhengzhou University, China
- S12-P025 Fabrication of Porous Ceramics Utilized Waste Molding Sand and Its Water Suction Characteristics**
H. Itoh¹, J. Takahashi², M. Kobayashi¹, N. Fujiwara³, M. Kishi⁴; ¹Kitami Institute of Technology, Japan, ²Hokkaido University, Japan, ³Hokkaido Railway Company, Japan, ⁴Hokkaido Institute of Technology, Japan