4th International Congress on Ceramics
Preliminary Program

This program is organized in the following order:

- Schedule of Events
- Opening Ceremony and Keynote Session – Page 1
- Plenary Sessions and Shaping the Future of Ceramics Wrap Up Session – Pages 1-3
- Concurrent Sessions – Pages 4-22
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  - Biology and Medicine Theme – Pages 8-9
  - Electronic, Optical and Magnetic Ceramics and Devices Theme – Pages 10-11
  - Environment, Energy and Transportation Theme – Pages 12-15
  - Infrastructure Theme – Pages 16-17
  - Nanostructured Ceramics Theme – Pages 18-19
  - Security and Strategic Materials Theme – Page 20
  - Workforce Development Theme – Page 21-22
- Interactive Technology Forum I – Pages 23-36
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See [www.ceramics.org/icc4](http://www.ceramics.org/icc4) for a complete schedule of events and details on receptions, ICC4 exhibit, Art Institute of Chicago Dinner, optional tours, etc.
### Sunday, July 15, 2012

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
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</thead>
<tbody>
<tr>
<td>Registration</td>
<td>2:30 to 8 p.m.</td>
</tr>
<tr>
<td>Opening Ceremony and Keynote (Co-sponsored by Northwestern University and Argonne National Lab)</td>
<td>6 to 7:25 p.m.</td>
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<tr>
<td>Keynote Speaker - Maxine Savitz</td>
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<tr>
<td>Welcome Reception</td>
<td>7:30 to 9:00 p.m.</td>
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</tbody>
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### Monday, July 16, 2012

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
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<tbody>
<tr>
<td>Registration</td>
<td>7:30 a.m. to 6 p.m.</td>
</tr>
<tr>
<td>Plenary Session Introduction</td>
<td>8:30 to 8:45 a.m.</td>
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<tr>
<td>Plenary Speaker - Gary Calabrese</td>
<td>8:45 to 9:40 a.m.</td>
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<tr>
<td>Break (Sponsored by Corning Incorporated)</td>
<td>9:40 to 10 a.m.</td>
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<tr>
<td>Plenary Speaker - Chang-Hoon Kim</td>
<td>10 to 10:55 a.m.</td>
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<tr>
<td>Plenary Speaker - John Tracy</td>
<td>11 to 11:55 a.m.</td>
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<tr>
<td>Lunch (Sponsored by The Boeing Co.)</td>
<td>Noon to 12:45 p.m.</td>
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<tr>
<td>Plenary Speaker - Athanasios Konstandopoulos</td>
<td>12:45 to 1:30 p.m.</td>
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<tr>
<td>Concurrent Sessions</td>
<td>1:40 to 3:40 p.m.</td>
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<tr>
<td>– Aerospace Session I</td>
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<td>– Nanostructured Ceramics Session I</td>
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<tr>
<td>– Environment, Energy and Transportation Session I</td>
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<tr>
<td>– Electronic, Optical and Magnetic Ceramics and Devices Session I</td>
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<tr>
<td>– Workforce Development Session I</td>
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<tr>
<td>Exhibit I</td>
<td>3:30 to 6:30 p.m.</td>
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<tr>
<td>Interactive Technology Forum (Sponsored by Samsung Electro-Mechanics)</td>
<td>3:45 to 6:30 p.m.</td>
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### Tuesday, July 17, 2012

<table>
<thead>
<tr>
<th>Event</th>
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<tbody>
<tr>
<td>Registration</td>
<td>7:45 a.m. to 6 p.m.</td>
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<tr>
<td>Plenary Speaker - Delbert Day</td>
<td>8:45 to 9:40 a.m.</td>
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<tr>
<td>Break (Sponsored by Kyocera)</td>
<td>9:40 to 10 a.m.</td>
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<tr>
<td>Concurrent Sessions</td>
<td>10 a.m. to Noon</td>
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<tr>
<td>– Aerospace Session II</td>
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<td>– Nanostructured Ceramics Session II</td>
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<tr>
<td>– Environment, Energy and Transportation Session II</td>
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<tr>
<td>– Electronic, Optical and Magnetic Ceramics and Devices Session II</td>
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</tr>
<tr>
<td>– 3rd Ceramic Leadership Summit Track (Sponsored by Morgan Crucible)</td>
<td>Noon to 12:45 p.m.</td>
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<tr>
<td>Lunch</td>
<td>Noon to 12:45 p.m.</td>
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<tr>
<td>Plenary Speaker - Michael Murray</td>
<td>12:45 to 1:30 p.m.</td>
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<tr>
<td>Concurrent Sessions</td>
<td>1:40 to 3:40 p.m.</td>
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<tr>
<td>– Aerospace Session III</td>
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<td>– Nanostructured Ceramics Session III</td>
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<tr>
<td>– Environment, Energy and Transportation Session III</td>
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<tr>
<td>– Electronic, Optical and Magnetic Ceramics and Devices Session III</td>
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</tbody>
</table>
Tuesday, July 17, 2012 (continued)
– Workforce Development Session II
– 3rd Ceramic Leadership Summit Track (Sponsored by Morgan Crucible)
Exhibit II 3:30 to 6:30 p.m.
Interactive Technology Forum (Sponsored by Samsung Electro-Mechanics) 3:45 to 6:30 p.m.

Wednesday, July 18, 2012
Registration 7:45 a.m. to 4:30 p.m.
Plenary Speaker - Yukio Sakabe 8:45 to 9:40 a.m.
Break 9:40 to 10 a.m.
Concurrent Sessions 10 a.m. to Noon
– Aerospace Session IV
– Security and Strategic Materials Session I
– Environment, Energy and Transportation Session IV
– Infrastructure Session I
– Workforce Development Session III
– Biology and Medicine Session I
Lunch on Own Noon to 1:30 p.m.
Plenary Speaker - David Bem 1:30 to 2:15 p.m.
Break 2:15 to 2:30 p.m.
Concurrent Sessions 2:30 to 4:30 p.m.
– Security and Strategic Materials Session II
– Environment, Energy and Transportation Session V
– Nanostructured Ceramics Session IV
– Infrastructure Session II
– Biology and Medicine Session II
Art Institute of Chicago Dinner 6:30 to 9:30 p.m.

Thursday, July 19, 2012
Registration 7:30 a.m. to Noon
Concurrent Sessions 8 to 9:20 a.m.
– Environment, Energy and Transportation Session VI
– Environment, Energy and Transportation Session VII
– Infrastructure Session III
– Biology and Medicine Session III
Break 9:20 to 9:40 a.m.
Plenary Speaker - Michael Holman 9:40 to 10:40 a.m.
Shaping the Future of Ceramics Wrap Up Session 10:40 a.m. to 12:15 p.m.
Sunday, July 15, 2012

Opening Ceremony and Keynote Session
Co-sponsored by Northwestern University and Argonne National Lab

6:00 PM-7:30 PM
Room: Chicago Ballroom 6 & 7 (Level 4)

6:00 PM
Opening Ceremony
Kathrine Faber, ICC4 President; Gary Messing, ICF President; George Wicks, ACerS President; David Pye, ACerS Past President; Cewen Nan, ICF President-Elect; Longtu Li, ICC5 President.

6:30 PM - KEYNOTE PRESENTATION
(ICC-001-2012) Materials: An Enabler
Maxine Savitz*, Honeywell, retired, USA

Monday, July 16, 2012

Plenary Session I

8:30 AM-1:30 PM
Room: Chicago Ballroom 6 & 7 (Level 4)

8:30 AM
(ICC-002-2012) Inventing the Future with New Materials
Gary S. Calabrese*, Corning Incorporated, USA

9:30 AM
Break (Sponsored by Corning Incorporated)

10:00 AM
(ICC-003-2012) The Technical Trend of Dielectrics of the Multi-Layer Ceramic Capacitors
Chang-Hoon Kim*, Samsung Electro-Mechanics Co., Ltd., Korea

11:00 AM
(ICC-004-2012) Materials and Technical Achievement: An Aerospace Perspective
John Tracy*, The Boeing Company, USA
Monday, July 16, 2012

Plenary Session II

12:00 PM-1:30 PM
Room: Chicago Ballroom 6 & 7 (Level 4)

12:00 PM
Lunch (Sponsored by The Boeing Co.)

12:45 PM
(ICC-005-2012) Multifunctional Ceramic Reactors for Green Mobility and Clean Energy Production
Athanasios G. Konstandopoulos*, CERTH/CPERI, Greece

Tuesday, July 17, 2012

Plenary Session III

8:45 AM-10:00 AM
Room: Chicago Ballroom 6 & 7 (Level 4)

8:45 AM
(ICC-006-2012) From Academia to Business
Delbert E. Day*, Missouri University of Science and Technology/MO-SCI Corp., USA

9:40 AM
Break (Sponsored by Kyocera)

Plenary Session IV

12:00 PM-1:30 PM
Room: Chicago Ballroom 6 & 7 (Level 4)

12:00 PM
Lunch

12:45 PM
Emerging Ceramic Technologies: A Perspective from Morgan Crucible Co.
Michael Murray*, Morgan Crucible Co., USA
Wednesday, July 18, 2012

Plenary Session V

8:45 AM-10:00 AM
Room: Chicago Ballroom 6 & 7 (Level 4)

8:45 AM
(ICC-007-2012) Development of Electro-ceramics of Today and the Future
Yukio Sakabe*, Tokyo Institute of Technology, Japan

Plenary Session VI

1:30 PM-2:30 PM
Room: Chicago Ballroom 6 & 7 (Level 4)

1:30 PM
David S Bem*, The Dow Chemical Company, USA

2:15 PM
Break

Thursday, July 19, 2012

Plenary Session VII and Wrap Up Session

9:40 AM-12:15 PM
Room: Chicago Ballroom 6 & 7 (Level 4)

9:40 AM
(ICC-009-2012) New Material Opportunities from Emerging Technology
Michael Holman*, Lux Research, USA

10:40 AM
(ICC-010-2012) Report from the Workshop on Emerging Areas of Ceramics Research (Invited Speaker)
Gregory S. Rohrer*, Carnegie Mellon University, USA

11:10 AM
Shaping the Future of Ceramics: Wrap Up
3rd Ceramic Leadership Summit Track
Sponsored by Morgan Crucible

Tuesday, July 17, 2012

Plenary Session III

8:45 AM-10:00 AM
Room: Chicago Ballroom 6 & 7 (Level 4)

8:45 AM
(ICC-006-2012) From Academia to Business
Delbert E. Day*, Missouri University of Science and Technology/MO-SCI Corp., USA

3rd Ceramic Leadership Summit Panel Discussion
10:00 AM-12:00 PM
Room: Chicago Ballroom 10 (Level 4)

10:00 AM
Panel Discussion: Technology Entrepreneurship - The Next Generation of Technology Transfer

Many people perceive the USA as the leader in entrepreneurship and technology transfer from basic research to a commercial setting. This moderated panel discussion will explore the development of commercial products through directed R&D with a focus on US-based small business ventures. It will follow a plenary talk by the founder of a successful ceramic materials company that takes technologies from the lab bench to established commercial products. The panel members - entrepreneurs, investors and technology transfer experts - will each make brief opening remarks. They will be followed by a question and answer session in which the moderator will develop the theme of starting, funding, staffing and growing technology-based businesses. There will be time for questions from the audience.

Moderator: Tim Lavengood, Evanston Technology Innovation Center

Panel Members:
Delbert Day, Mo-Sci Corporation; Collin Anderson, Digital Innovations; Alex Arzoumanidis, Psylotech, Inc.; Jonathan Goodman, Synthesis Intellectual Property, LLC; Leslie Millar, University of Illinois Urbana-Champaign; John Banta, IllinoisVentures, LLC
Tuesday, July 17, 2012

Plenary Session VI

12:45 PM-1:30 PM
Room: Chicago Ballroom 6 & 7 (Level 4)

Emerging Ceramic Technologies: A Perspective from Morgan Crucible Co.
Michael Murray*, Morgan Crucible Co., USA

International Technology Transfer and Entrepreneurship Case Studies

1:40 PM-4:10 PM
Room: Chicago Ballroom 10 (Level 4)

1:40 PM
(ICC-088-2012) Entrepreneurial Success of Balder LTD - Electro-optic Light Shutters for Eye-protection (Invited Speaker)
Janez Pirs*, M. Kosec, Jozef Stefan Institute, Slovenia

2:10 PM
(ICC-089-2012) Development and Commercialization of High Performance Ceramics for Oil and Natural Gas Recovery (Invited Speaker)
John R Hellmann*, Barry E Scheetz, Ryan P Koseski, Penn State, USA; Marty Bradley, Tim Hurley, Nittany Extraction Technologies LLC, USA

2:40 PM
(ICC-090-2012) From technology innovation to industrialization: a case of ceramic microbeads based on gel-bead forming (Invited Speaker)
Jinlong Yang*, Xiaoqing Xi, Yong Huang, Tsinghua University, China

3:10 PM
(ICC-091-2012) Neoker, a Spin-Out of the University of Santiago de Compostela (Spain) (Invited Speaker)
Victor Valcarcel*, Carmen Cerecedo, Neoker, Spain

3:40 PM
(ICC-092-2012) Thermoelectric Power Generation in Wide Temperature Region (Invited Speaker)
Ryoji Funahashi*, National Institute of Advanced Industrial Science & Technology, Japan

Related Presentation: Angus Kingon, What is the Role of Entrepreneurship in Workforce Development?, Workplace Development I, Monday, 1:45 PM
Monday, July 16, 2012

Aerospace I

1:40 PM-3:40 PM
Room: Michigan A & B (Level 2)

1:40 PM
(ICC-011-2012) Ceramics for Defense Aerospace Applications (Invited Speaker)
Allan Katz*, Air Force Research Laboratory, Materials and Manufacturing Directorate, USA

2:20 PM
(ICC-012-2012) Research and Development of Structural Materials for Mach 5 Hypersonic Aircraft (Invited Speaker)
Takuya Aoki*, Takayuki Kojima, Hideyuki Taguchi, Japan Aerospace Exploration Agency, Japan; Toshio Ogasawara, Japan Aerospace Exploration Agency, Japan

Tuesday, July 17, 2012

Aerospace II

10:00 AM-12:00 PM
Room: Michigan A & B (Level 2)

10:00 AM
(ICC-013-2012) Ceramic Innovations at Rolls-Royce (Invited Speaker)
Jay Lane*, Ann Bolcavage, Rolls-Royce Corporation, USA

10:40 AM
(ICC-014-2012) Ceramic Matrix Composites for Structural Aerospace Applications (Invited Speaker)
Miklos Petervary*, Todd Steyer, Boeing Company, USA

11:20 AM
(ICC-015-2012) Post Processing of Advanced Thermal Barrier Coatings (Invited Speaker)
Christopher Berndt*, Swinburne University of Technology, Australia
Tuesday, July 17, 2012

Aerospace III

1:40 PM-3:40 PM
Room: Michigan A & B (Level 2)

1:40 PM
Diletta Sciti*, Laura Silvestroni, Stefano Guicciardi, Alida Bellosi, National Research Council, Italy

2:20 PM
(ICC-017-2012) Space Shuttle Tile Thermal Protection System History, Improvements & Future (Invited Speaker)
Daniel Leiser*, NASA Ames Research Center, USA

3:00 PM
(ICC-018-2012) UBE’s Ceramic Strategy for Aerospace and Other Applications (Invited Speaker)
Toshihiro Ishikawa*, Ube Industries, Ltd., Japan

Wednesday, July 18, 2012

Aerospace IV

10:00 AM-12:00 PM
Room: Michigan A & B (Level 2)

10:00 AM
(ICC-019-2012) FAA Technology Development of Ceramic Matrix Composite Aircraft Components (Invited Speaker)
Rhett Jefferies*, Federal Aviation Administration, USA

10:40 AM
(ICC-020-2012) Testing Developments for Ceramic Matrix Composites in Extreme Environments (Invited Speaker)
John R Koenig*, Jacques C Cuneo, Bhavesh V Patel, Southern Research Institute, USA

11:20 AM
(ICC-021-2012) Overview of Industry Producability Roadmapping Efforts for Advanced Ceramics (Invited Speaker)
Glen Mandigo*, Doug Freitag, U.S. Advanced Ceramics Association, USA
Wednesday, July 18, 2012

Biology and Medicine I

10:00 AM-12:00 PM
Room: Chicago Ballroom 10 (Level 4)

10:00 AM
Edgar Dutra Zanotto*, Federal University of Sao Carlos, Brazil

10:40 AM
(ICC-023-2012) Apatite-based Ceramics for Orthopaedic Applications (Invited Speaker)
Serena Michelle Best*, University of Cambridge, United Kingdom

11:20 AM
(ICC-024-2012) Bioceramic Scaffolds for Tissue Engineering Applications (Invited Speaker)
Kajal Mallick*, University of Warwick, United Kingdom

Biology and Medicine II

2:30 PM-3:50 PM
Room: Chicago Ballroom 10 (Level 4)

2:30 PM
(ICC-025-2012) Nanoceramics in Dentistry (Invited Speaker)
Richard P. Rusin*, 3M, USA

3:10 PM
(ICC-026-2012) An Innovative Shaping Technique to Build Ceramic Prosthesis for the Repair of Large Craniofacial Bone Defects (Invited Speaker)
Christophe Chaput*, 3dceram, France; Thierry Chartier, SPCTS CNRS, France; Joel Brie, CHU Limoges Hospital, France; Jean Baptiste Lafon, 3dceram, France
Thursday, July 19, 2012
Biology and Medicine III

8:00 AM-9:20 AM
Room: Chicago Ballroom 10 (Level 4)

8:00 AM
(ICC-027-2012) Silicon Nitride: A Novel Biomaterial (Invited Speaker)
Ashok C Khandkar*, BloXR, USA

8:40 AM
(ICC-028-2012) Strong Oxide Ceramics for Medical Applications (Invited Speaker)
Meinhard Helmut Kuntz*, CeramTec GmbH, Germany
Monday, July 16, 2012
Electronic, Optical and Magnetic Ceramics and Devices I

1:40 PM-3:40 PM
Room: Chicago Ballroom 9 (Level 4)

1:40 PM
(ICC-029-2012) Rigid Electronic Materials for Stretchable Device Applications (Invited Speaker)
John A. Rogers*, University of Illinois at Urbana/Champaign, USA

2:20 PM
Title TBD (Invited Speaker)
Jon-Paul Maria*, North Carolina State University, USA

3:00 PM
(ICC-030-2012) Ceramic Packaging Morphs to Keep Up With The Challenges in the Semiconductor Industry (Invited Speaker)
Chong Park*, Kyocera America, Inc., USA

Tuesday, July 17, 2012
Electronic, Optical and Magnetic Ceramics and Devices II

10:00 AM-12:00 PM
Room: Chicago Ballroom 9 (Level 4)

10:00 AM
(ICC-031-2012) TSDC Analysis for Oxygen Vacancy Study in Rare Earth and Magnesium co-doped BaTiO3 (Invited Speaker)
Noriyuki Inoue*, Russell A Maier, The Pennsylvania State University, USA; Atsushi Honda, Hiroshi Takagi, Murata Manufacturing Co., Ltd., Japan; Clive A Randall, The Pennsylvania State University, USA

10:40 AM
(ICC-032-2012) Recent Topics of Soft Ferrites (Invited Speaker)
Takuya Aoki*, Shenglai Che, TDK Corporation, Japan; Masahiko Watanabe, TDK-EPC Corporation, Japan; Kentaro Mori, Naoyoshi Sato, Katsushi Yasuhara, TDK Corporation, Japan; Taku Murase, TDK-EPC Corporation, Japan

11:20 AM
(ICC-033-2012) Thermoelectric Oxides- From Materials Design to Modules (Invited Speaker)
Anke Weidenkaff*, Sascha Populoh, Lassi Karvonen, Matthias Trottmann, Gesine Saucke, Empa, Switzerland
Tuesday, July 17, 2012
Electronic, Optical and Magnetic Ceramics and Devices III

1:40 PM-3:40 PM
Room: Chicago Ballroom 9 (Level 4)

1:40 PM
(ICC-034-2012) Future Directions in Piezoceramics (Invited Speaker)
Juergen Roedel*, Wook Jo, Robert Dittmer, TU Darmstadt, Germany

2:20 PM
(ICC-035-2012) High Energy Dielectrics for Pulse Power and Power Electronic Applications (Invited Speaker)
Michael Lanagan*, Penn State, USA

3:00 PM
(ICC-036-2012) Integration of Functional Materials into LTCC Multilayer Modules (Invited Speaker)
Jorg Topfer*, Timmy Reimann, Silvia Bierlich, University Appl. Science, Germany; Stefan Barth, Beate Pawlowsk, Fraunhofer Institute IKTS, Germany; Heike Bartsch-de Torres, Jens Müller, Technical University Ilmenau, Germany

Related Presentation: Zhong Lin Wang, Nanoceramics for New Energy and Piezotronics, Nanostructured Ceramics IV, Wednesday, 2:30 PM

Related Presentation: Minoru Kanehira, Thin Films and Nanostructures for Thermochromic Smart Window, Environment, Energy, and Transportation VII, Thursday, 8 AM

Related Presentation: S. K. Sundaram, THz Ceramics for Novel Applications, Environment, Energy, and Transportation VII, Thursday, 8:40 AM
Monday, July 16, 2012
Environment, Energy and Transportation I

1:40 PM-3:40 PM
Room: Chicago Ballroom 8 (Level 4)

1:40 PM
(ICC-037-2012) Emerging Applications of Ceramics at General Electric (Invited Speaker)
Krishan Lal Luthra*, General Electric Global Research, USA

2:20 PM
(ICC-038-2012) Change of Energy Mix - Challenges on the Materials Level (Invited Speaker)
Wolfgang Rossner*, Siemens AG, Germany

3:00 PM
(ICC-039-2012) The Unique Role of Ceramics in Energy Technologies: Recent Developments and Opportunities (Invited Speaker)
Juan C Nino*, University of Florida, USA

Tuesday, July 17, 2012
Environment, Energy and Transportation II

10:00 AM-12:00 PM
Room: Chicago Ballroom 8 (Level 4)

10:00 AM
(ICC-040-2012) Future of Porous Ceramics in Environmental, Energy and Related Applications (Invited Speaker)
Paolo Colombo*, University of Padova, Italy

10:40 AM
Trends and Opportunities for Advanced Ceramics in the Field of Energy and Environment (Invited Speaker)
William Mustel*, Saint-Gobain High Performance Refractories, France

11:20 AM
(ICC-041-2012) Development Strategies for SiAlON Ceramics in Wear Applications: Challenges and Potentials (Invited Speaker)
Hasan Mandal*, Sabancil University, Turkey
Tuesday, July 17, 2012

Environment, Energy and Transportation III

1:40 PM-3:40 PM
Room: Chicago Ballroom 8 (Level 4)

1:40 PM
(ICC-042-2012) Facile Synthesis and Electrochemical Characterization of Oxide Nanostructures for Energy Storage Applications (Invited Speaker)
Do Kyung Kim*, KAIST (Korea Advanced Institute of Science and Technology), Korea

2:20 PM
(ICC-043-2012) Microstructure Changes of Electrodes during Operation of Solid Oxide Fuel Cells (Invited Speaker)
Koichi Eguchi*, Hiroki Muromaya, Toshiaki Matsui, Kyoto University, Japan

3:00 PM
(ICC-044-2012) Processing of Particulate Films for Solid Oxide Fuel Cell Application (Invited Speaker)
Rajendra N. Basu*, CSIR - Central Glass & Ceramic Research Institute, India

Wednesday, July 18, 2012

Environment, Energy and Transportation IV

10:00 AM-12:00 PM
Room: Chicago Ballroom 8 (Level 4)

10:00 AM
Louis Winnubst*, University of Twente, Netherlands

10:40 AM
(ICC-046-2012) New Generation Ceramic Hot Gas Filters for Simultaneous Removal of Particulate Matter, SOx and NOx (Invited Speaker)
Manfred Salinger*, Pall GmbH, Germany

11:20 AM
Yuji Iwamoto*, Nagoya Institute of Technology, Japan

Related Presentation: Lionel Lemay, Innovations that Enhance the Sustainable Attributes of Concrete-based Materials, Infrastructure I, Wednesday, 11:20 AM
Wednesday, July 18, 2012
Environment, Energy and Transportation V

2:30 PM-4:30 PM
Room: Chicago Ballroom 8 (Level 4)

2:30 PM
(ICC-048-2012) The Role of SiC Ceramics and Composites in Nuclear Energy for the Post-Fukushima Era (Invited Speaker)
Yutai Katoh*, Lance L Sneed, Oak Ridge National Lab, USA

3:10 PM
Masaki Ozawa*, Tokyo Institute of Technology, Japan

3:50 PM
(ICC-050-2012) Designed Materials for Solar Thermochemical Redox Cycling (Invited Speaker)
Alan W Weimer*, Univ Colorado, USA

Related Presentation: Liaurent Barcelo, Belite, Calcium Sulfoaluminate and Calcium Aluminoferrite Based Clinkers, a New Way to Address the Sustainability Challenges of the Cement Industry, Infrastructure II, Wednesday, 2:30 PM

Related Presentation: Zhong Lin Wang, Nanoceramics for New Energy and Piezotronics, Nanostructured Ceramics IV, Wednesday, 2:30 PM

Related Presentation: Andreas Tselebidis Belite, Sustainable Concrete, Infrastructure II, Wednesday, 3:10 PM

Thursday, July 19, 2012
Environment, Energy and Transportation VI

8:00 AM-9:20 AM
Room: Michigan A & B (Level 2)

8:00 AM
(ICC-051-2012) The Critical Role of Ceramics in Automotive Exhaust Particulate Emission Control (Invited Speaker)
George Gabriel Muntean*, Mark Stewart, Maruthi Devarakonda, PNNL, USA

8:40 AM
(ICC-052-2012) Micron-Scale Tunable Acicular Mullite Ceramics for Filtration Applications (Invited Speaker)
Jim O’Brien*, Michael Malanga, Paul Vosejpka, Clifford Todd, Ashish Kotnis, The Dow Chemical Company, USA
Thursday, July 19, 2012
Environment, Energy and Transportation VII

8:00 AM-9:20 AM
Room: Superior A & B (Level 2)

8:00 AM
(ICC-053-2012) Thin Films and Nanostructures for Thermochromic Smart Window: State of the Art and Outlook (Invited Speaker)
Minoru Kanehira*, Hongjie Luo, Yanfeng Gao, Shanghai Institute of Ceramics, China

8:40 AM
(ICC-054-2012) THz Ceramics for Novel Applications (Invited Speaker)
S. K Sundaram*, Alfred University, USA
Wednesday, July 18, 2012

Infrastructure I

10:00 AM-12:00 PM
Room: Chicago Ballroom 9 (Level 4)

10:00 AM
(ICC-055-2012) Models and Measurements with Implications to Understanding Mechanisms (Invited Speaker)
Hamlin Jennings*, Massachusetts Institute of Technology, USA

10:40 AM
(ICC-056-2012) Cellulose Nanomaterials an Opportunity for Cements? (Invited Speaker)
Robert Moon*, U.S. Forest Service, USA; J. Weiss, J. Youngblood, P. D Zavattieri, Purdue University, USA

11:20 AM
(ICC-057-2012) Innovations that Enhance the Sustainable Attributes of Concrete-based Materials (Invited Speaker)
Lionel Lemay*, National Ready Mixed Concrete Association, USA

Infrastructure II

2:30 PM-4:30 PM
Room: Chicago Ballroom 9 (Level 4)

2:30 PM
(ICC-058-2012) Belite, Calcium Sulfoaluminate and Calcium Aluminoferrite Based Clinkers, a New Way to Address the Sustainability Challenges of the Cement Industry (Invited Speaker)
Laurent Barcelo*, John Kline, Lafarge Canada Inc, Canada; Gunther Walenta, Ellis Gartner, Lafarge Research Center, France

3:10 PM
(ICC-059-2012) Sustainable Concrete (Invited Speaker)
Andreas Tselebidis*, BASF CORP, USA

3:50 PM
(ICC-060-2012) Materials Research at the U.S. Army Engineer Research and Development Center (Invited Speaker)
Todd S Rushing*, U.S. Army ERDC, USA
Thursday, July 19, 2012
Infrastructure III

8:00 AM-9:20 AM
Room: Chicago Ballroom 9 (Level 4)

8:00 AM
Mariarosa Raimondo*, CNR ISTEC, Italy

8:40 AM
(ICC-062-2012) Superabsorbent Polymers in Portland Cement-based Composites (Invited Speaker)
Wilasa Vichit-Vadakan*, Jirawan Siramanont, Siam Research and Innovation Co. Ltd., Thailand
Monday, July 16, 2012
Nanostructured Ceramics I

1:40 PM-3:40 PM
Room: Superior A & B (Level 2)

1:40 PM
(ICC-063-2012) Nanotechnology Research at NIOSH: Supporting Safe Development of the Business (Invited Speaker)
Charles L. Geraci*, NIOSH, USA

2:20 PM
(ICC-064-2012) Nanotoxicology and Nanomedicine: Risk Assessment and Therapy (Invited Speaker)
Lang Tran*, Institute of Occupational Medicine, United Kingdom

3:00 PM
(ICC-065-2012) Mesoporous Silica Nanoparticles and the Quest to Deliver Biomedical Benefits (Invited Speaker)
Kathleen Eggleson*, University of Notre Dame, USA

Tuesday, July 17, 2012
Nanostructured Ceramics II

10:00 AM-12:00 PM
Room: Superior A & B (Level 2)

10:00 AM
(ICC-066-2012) International Standardization Efforts in NanoEHS (Invited Speaker)
Angela Hight Walker*, National Institute of Standards and Technology, USA

10:40 AM
(ICC-067-2012) Environmental, Health, and Safety Assessment of Engineered Nanomaterials (Invited Speaker)
Debra Lee Kaiser*, NIST, USA

11:20 AM
Jeffrey Fagan*, National Institute of Standards and Technology, USA
Tuesday, July 17, 2012
Nanostructured Ceramics III

1:40 PM-3:40 PM
Room: Superior A & B (Level 2)

1:40 PM
Donald Ewert*, nanoTox, Inc., USA

2:20 PM
(ICC-070-2012) Evaluating Toxicity of Graphene Oxides (Invited Speaker)
Sudipta Seal*, S. Das, L. Zhai, S. Khondekar, J. Dowding, D. Jong, W. Self, University Of Central Florida, USA

3:00 PM
(ICC-071-2012) Priorities for Nanoscale Ceramics (Invited Speaker)
Lynnette D Madsen*, National Science Foundation, USA

Related Presentation: Robert Moon, Cellulose Nanomaterials an Opportunity for Cements?, Infrastructure I, Wednesday, 10:40 AM

Wednesday, July 18, 2012
Nanostructured Ceramics IV

2:30 PM-4:30 PM
Room: Michigan A & B (Level 2)

2:30 PM
(ICC-072-2012) Nanoceramics for New Energy and Piezotronics (Invited Speaker)
Zhong Lin Wang*, Georgia Institute of Technology, USA

3:10 PM
(ICC-073-2012) Materials Development: Paving the Way to New Innovation (Invited Speaker)
Anne Hardy*, Compagnie de Saint Gobain, France

3:50 PM
(ICC-074-2012) Nanostructured Ceramics and Hybrid Materials in Toyota Central R&D Labs (Invited Speaker)
Masaya Kawasumi*, TOYOTA Central R&D Labs. Inc., Japan

Related Presentation: Mariatosa Raimondo, Making Super-hydrophobic Building Materials: Static and Dynamic Behaviour of Nanostructured Surfaces, Infrastructure III, Thursday, 8:00 AM
Security and Strategic Materials I

10:00 AM-12:00 PM
Room: Superior A & B (Level 2)

10:00 AM
Hideo Hosono*, Tokyo Institute of Technology, Japan

10:40 AM
Marc Humphries*, Congressional Research Service, USA

10:40 AM
Richard A. Lowden*, Oak Ridge National Laboratory, USA

Security and Strategic Materials II

2:30 PM-4:30 PM
Room: Superior A & B (Level 2)

2:30 PM
(ICC-095-2012) Advanced Materials Research for Extreme Loading (Invited Speaker)
Stanley C. Woodson*, U.S. Army Engineer Research and Development Center, USA

3:10 PM
(ICC-096-2012) Ceramics and Ceramic Matrix Composites for National Security Applications (Invited Speaker)
Douglas Freitag*, United States Advanced Ceramic Association; Bayside Materials Technology, USA
Monday, July 16, 2012

Workforce Development I - Global Challenges

1:40 PM-3:40 PM
Room: Erie (Level 2)

1:45 PM
(ICC-075-2012) What is the Role of Entrepreneurship in Workforce Development? (Invited Speaker)
Angus Kingon*, Brown University, USA

2:20 PM
(ICC-076-2012) Integrated Computational Materials Science and Engineering (Invited Speaker)
Umesh V. Waghmare*, J Nehru Centre for Advanced Scientific Research, India

3:00 PM
Patrick Bressler*, Fraunhofer Gesellschaft, Belgium

3:20 PM
(ICC-078-2012) Materials Science in the Developing World: Challenges and Perspectives (Invited Speaker)
Federico Rosei*, INRS, Canada

Tuesday, July 17, 2012

Workforce Development II - Creating an Effective, Competitive Workforce

1:40 PM-3:40 PM
Room: Erie (Level 2)

1:45 PM
Catherine Hill, Christianne Corbett*, Andresse St. Rose, American Association of University Women, USA

2:20 PM
(ICC-080-2012) Diversity and Degree Production in Materials Science and Engineering (Invited Speaker)
Keith J. Bowman*, Illinois Institute of Technology, USA
Tuesday, July 17, 2012

Workforce Development II (Continued)

2:40 PM
(ICC-081-2012) Involving Undergraduates in Research (Invited Speaker)
Mario Affatigato*, Coe College, USA

3:00 PM
(ICC-082-2012) Career Opportunities in Glass: The Random Network Model (Invited Speaker)
Louis Mattos*, The Coca-Cola Company, USA

Wednesday, July 18, 2012

Workforce Development III - International Challenges and Opportunities

10:00 AM-11:40 AM
Room: Erie (Level 2)

10:05 AM
(ICC-083-2012) Dual Doctoral Programs in the Field of Glasses and Ceramics Between France and USA or China (Invited Speaker)
Jean-Luc Adam, Xiang-Hua Zhang*, Université de Rennes / CNRS, France

10:20 AM
(ICC-084-2012) Programs to Support Young Post-doctoral researchers in Japan (Invited Speaker)
Fumiyo Kaneko*, Japan Society for the Promotion of Science, USA

10:40 AM
(ICC-085-2012) Programs for Foreign Scientists from Chinese Academy of Sciences (CAS) (Invited Speaker)
Hongjie Luo*, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

11:00 AM
(ICC-086-2012) Mentoring of Postdoctoral Scholars (Invited Speaker)
Judith A Todd*, Penn State University, USA

11:20 AM
(ICC-087-2012) Strategies to Encourage International Cooperation (Invited Speaker)
Mary Lynn Realff*, Georgia Institute of Technology, USA
Monday, July 16, 2012
Interactive Technology Forum I
Sponsored by Samsung Electro-Mechanics

3:45 PM-6:30 PM
Room: River Exhibition Hall B (Level 1)

Interactive Presentations

(ICC-P097-2012) Assessing Damage in Ceramic Matrix Composites For Jet Engine Applications after Impact
Christopher Richard Baker*, Gregory N Morscher, University of Akron, USA

 Gregory John Kenneth Harrington*, Matthew J Thompson, Greg E Hilmas, William G Fahrenholtz, Missouri University of Science and Technology, USA

(ICC-P099-2012) Study on Al2O3 coating deposited onto carbon fiber reinforced polymer matrix substrate
Guanhong Sun*, Xiaodong He, Jiuxing Jiang, Yue Sun, Harbin Institute of Technology, China

(ICC-P100-2012) Processing, Microstructure, Mechanical and Thermal Properties of Porous Ti2AlC with Controlled Porosity and Pore Size
Liangfa Hu*, Rogelio Benitez, Sandip Basu, Ibrahim Karaman, Miladin Radovic, Texas A&M University, USA

(ICC-P101-2012) Oxidation Behavior of Zirconium Diboride with Transition Metal Additions
Maryam Kazemzadeh Dehdashti*, William G Fahrenholtz, Gregory E Hilmas, Missouri University of Science and Technology, USA

(ICC-P102-2012) GdB3(Ce) Glass-Ceramic Scintillators for Gamma-ray Spectroscopy
Brooke Barta*, Georgia Institute of Technology, USA; Jason H Nadler, Zhitao Kang, Brent Wagner, Bernd Kahn, Georgia Tech Research Institute, USA

(ICC-P103-2012) Analysis of the sintering stresses and shape distortion produced in co-firing of CGO-LSM/CGO bi-layer porous structures
De Wei Ni*, Vincenzo Esposito, Cristine G Schmidt, Tesfaye T Molla, Severine Ramousse, Technical University of Denmark, Denmark

(ICC-P104-2012) Characterisation of Bi/Gd-doped BaTiO3 ceramics
Giorgio Schileo*, Antonio Feteira, Sheffield Hallam University, United Kingdom; Klaus Reichmann, Institute for Chemistry and Technology of Materials, Graz University of Technology, Austria
**ICC4 Interactive Presentations - Monday**

*(ICC-P105-2012)* Preparation and properties of translucent YAG:Ce ceramics obtained by solid state reaction sintering  
Malgorzata Sopicka-Lizer*, Daniel Michalik, Tomasz Pawlik, Silesian University of Technology, Poland

*(ICC-P106-2012)* Gelcasting of Large and Complex Submicron-Grained Bodies  
Martin Trunec*, Karel Maca, Brno University of Technology, Czech Republic

*(ICC-P107-2012)* Powder Injection Molding of translucent ceramic parts  
Anne Mannschatz, Axel Müller, Matthias Ahlhelm*, Tassilo Moritz, Alexander Michaelis, Fraunhofer Institute for Ceramic Technologies and Systems (IKTS), Germany

*(ICC-P108-2012)* Bottom-electrode Assisted Sintering in PLZT Thin Films  
Sheng Tong*, University of Cincinnati, USA; Beihai Ma, Manoj Narayanan, Shanshan Liu, Uthamalingam Balachandran, Argonne National Laboratory, USA; Donglu Shi, University of Cincinnati, USA

*(ICC-P109-2012)* High Temperature Piezoelectric Ceramics based on (1-x)[BiScO₃+Bi(Ni₁/₂Ti₁/₂)O₃]-xPbTiO₃  
Troy Ansell*, Oregon State University, USA

*(ICC-P110-2012)* Processing of IR transparent ZnS bulk materials  
Yiquan Wu, Shi Chen*, Alfred University, USA

*(ICC-P111-2012)* Induced Piezoelectricity in Tunable Ba₁₋ₓSrₓTiO₃ Thin Film Dielectrics  
Lauren Garten*, Susan Trolier-McKinstrey, Pennsylvania State University, USA; Jon-Paul Maria, North Carolina State University, USA

*(ICC-P112-2012)* Two-Stage Master Sintering Curve as a Robust Grey-Box Tool for Setting Sintering Strategies  
Karel Maca*, Vaclav Pouchly, Brno University of Technology, Czech Republic; Zhijian J Shen, Stockholm University, Sweden

*(ICC-P113-2012)* Freeze foaming - A direct foaming technique achieving cellular structures for versatile applications  
Matthias Ahlhelm*, Fraunhofer Institute for Ceramic Technologies and Systems (IKTS), Germany; Erwin Gorjup, Hagen von Briesen, Fraunhofer Institute for Biomedical Engineering (IBMT), Germany; Tassilo Moritz, Alexander Michaelis, Fraunhofer Institute for Ceramic Technologies and Systems (IKTS), Germany
ICC4 Interactive Presentations - Monday

(ICC-P114-2012) Processing Ceramic Porous Structures by Emulsion Templating
Omer Van der Biest*, Bram Neirinck, Jan Fransaer, Jef Vleugels, K. U. Leuven, Belgium

(ICC-P115-2012) Synthesis of Homogeneous Plate-like Ceria Particles and Their Multifunction as Cosmetic Materials
Shu Yin*, Yoshihiro Minamidate, Shunsuke Tonouchi, Tsugio Sato, Tohoku University, Japan

(ICC-P116-2012) Utilizing Pressure-Induced Transformations for Toughening of Ceramics
Subramanian Ramalingam*, Ivar E Reimanis, Colorado School of Mines, USA

(ICC-P117-2012) Novel surface-coating technique of a morphology controlled zinc oxide
Takehiro Goto*, Shu Yin, Tsugio Sato, Tohoku University, Japan; Takumi Tanaka, Daito Kasei Kogyo CO., LTD., Japan
Monday, July 16, 2012
Interactive Technology Forum I
Sponsored by Samsung Electro-Mechanics

3:45 PM-6:30 PM
Room: River Exhibition Hall B (Level 1)

Poster Presentations

(ICC-P001-2012) High strength porous YSZ ceramics reinforced by YSZ fibers
Chang-An Wang*, Jun Zhou, Yanhao Dong, Ying Lang, Yong Huang, Tsinghua University, China

(ICC-P002-2012) Microstructure/property changes in TZP and TZP/Lanthanum zirconate composites by two-step firing schedules
Elsa Antunes*, Innovnano, S.A., Portugal; Teresa Carvalho, Ceramics Dep. University of Aveiro, Portugal; João Calado, Innovnano, S.A., Portugal; Filipe Figueiredo, Ceramics Dep. University of Aveiro, Portugal; Dachamir Hotza, Dep. Chem. Eng., UFSC,, Brazil; Jorge Frade, Sónia Rosa, Ceramics Dep. University of Aveiro, Portugal

(ICC-P003-2012) Spark Plasma Sintering (SPS) of SiC - Magnesium Alloy Composites
Eric J. Faierson*, James W Sears, Quad City Manufacturing Lab - Western IItinois University, USA

(ICC-P004-2012) Functionally Graded Ultra-High Temperature Ceramics Based on "Ridge-Effect" Phenomenon
Igor Logan Shabalin*, Yu Wang, University of Salford, United Kingdom; Lingfei Zhang, EDF R&D Matériaux et Mécanique des Composants, France

(ICC-P005-2012) Fabrication and Properties of Nano-Porous SiO₂ Insulation Materials by Modified Freeze-Drying Method
Jie Tang, Yufeng Chen*, Maoqiang Li, Liming Hu, China Building Materials Academy, China

(ICC-P006-2012) The Effect of Cure Period on the Mechanical Properties of Silica/Phenolic Composites Prepared via Compression Molding Method
Onder Guney*, Erdem Demirkesen, Istanbul Technical University, Turkey

(ICC-P007-2012) Evaluation of impact bending strength of ceramic composites at ultra-high temperatures from 1800-2200 K in air
Wan Detian*, Bao Yiwang, Liu Xiaogen, Qiu Yan, China Building Materials Academy, China

(ICC-P008-2012) The Influence of t’ Phase on Mechanical Properties in 8 wt% YSZ Thermal Barrier Coatings
Xiaorui Ren*, Wei Pan, Tsinghua University, China
ICC4 Poster Presentations - Monday

(ICC-P009-2012) Sol-gels as Image Plates
Christian Foerster*, Jacqueline Johnson, University of Tennesse Space Institute, USA

(ICC-P010-2012) Nanopowders of dental zirconia obtained by different synthesis routes
Federica Bondioli*, Università di Modena e Reggio Emilia, Italy; Claudia Volpato, Federal University of Santa Catarina, Brazil; Davide Sighinolfi, Expert System Solution srl, Italy; Marcio Fredel, Federal University of Santa Catarina, Brazil

(ICC-P011-2012) Preparation of novel calcium silicate ceramics with interlayers for biomaterial applications
Hirotaka Maeda*, Tomoyuki Tamura, Akiko Obata, Toshihiro Kasuga, Nagoya Institute of Technology, Japan

(ICC-P012-2012) Modified calcium phosphate materials for medical applications
Vita Zalite*, Janis Locs, Liga Berzina-Cimdina, Dagnija Loca, Daina Vempere, Riga Technical University, Latvia

(ICC-P013-2012) The Effect of Alkaline Treatment on Biomimetic Apatite Formation and Adhesive Strength
Kambiz Fatehi*, Fathollah Moztarzadeh, Tehran Polytechnic Univ, Islamic Republic of Iran

(ICC-P014-2012) Biofabrication of glass scaffolds by 3D printing
Liliana S O Pires, Maria H V Fernandes, Jose M M Oliveira*, University of Aveiro, Portugal

(ICC-P015-2012) Influence of defect concentration on dielectric and polarization property in Hydroxyapatite
Naohiro Horiuchi*, Kosuke Nozaki, Miho Nakamura, Akiko Nagai, Kimihiro Yamashita, Tokyo Medical and Dental University, Japan

(ICC-P016-2012) Radical Annihilation Performance of Ceria Nanosols Produced by Photochemical Reaction
Naoko Fujita*, Koji Horiguchi, Yuji Hamasaki, Kai Kamada, Nagasaki University, Japan

(ICC-P017-2012) Fabrication of Wollastonite Glass-Ceramic Scaffolds by New Method
Parvin Alizadeh*, Davud Abadkar, Tarbiat Modares University, Islamic Republic of Iran
Toshiisa Konishi*, Minori Mizumoto, Honda Mihiko, Kanagawa Academy of Science and Technology (KAST), Japan; Yasuhiro Takeuchi, Hiroshi Nagashima, Mamoru Aizawa, Meiji University, Japan

(ICC-P019-2012) Dielectric and non-linear characteristics of La-doped BaTiO$_3$ ceramics  
Adelina Ianculescu*, University Politehnica of Bucharest, Romania; Zina Mocanu, Lavinia Curecheriu, Liliana Mitoseriu, "Alexandru Ioan Cuza" University, Romania; Catalina Vasilescu, University Politehnica of Bucharest, Romania; Roxana Trusca, S.C. METAV - Research & Development, Romania

(ICC-P020-2012) Fabrication and Transport Study of Atomically Thin MoS$_2$ Field Effect Transistors  
Alex C Freedman*, Bin Liu, Dattatray J Late, Northwestern University, USA; C. Rao, Jawaharlal Nehru Centre for Advanced Scientific Research, India; Vinayak P Dravid, Northwestern University, USA

(ICC-P021-2012) Crystal structure and dielectric properties of Bi$_{0.8}$Ba$_{0.2}$Fe$_{0.95}$Nb$_{0.05}$O$_3$ multiferroic  
Ashish Agarwal*, Reetu Dahiya, Sujata Sanghi, Ashima Hooda, Guru Jambheshwar University of Science and Technology, India

(ICC-P022-2012) The effect of different rare earth oxides on optical property of hot pressed $\alpha$/$\beta$ SiAlON ceramics  
Bhupendra Joshi*, Sun Moon University, Korea; Hao Wang, Zhengyi Fu, Department of Metallurgy and Material Engineering, Sunmoon University, Korea. 2State Key Lab of Advanced Technology for Material Synthesis and Processing, Wuhan University of Technology, China; Soo W Lee, Sun Moon University, Korea

(ICC-P023-2012) Influences of Multiple Doping on Spark Plasma Sintered Transparent Alumina  
Burcu Apak*, Halide E Kanbur, Istanbul Technical University, Turkey; Esra O Zayim, Istanbul Technical University, Turkey; Gültekin Göller, Onuralp Yücel, Filiz C Sahin, Istanbul Technical University, Turkey

(ICC-P024-2012) Study of nanostructured Ba(Ti,Zr)O$_3$ ceramics produced by spark plasma sintering  
Catalina Vasilescu*, Adelina Ianculescu, University Politehnica of Bucharest, Romania; Lavinia Curecheriu, Cristina Ciomaga, Liliana Mitoseriu, "Alexandru I. Cuza" University, Romania; Daniela Berger, University Politehnica of Bucharest, Romania; Gilbert Fantozzi, Guillaume Bonnefont, University of Lyon, France
(ICC-P025-2012) Synthesis of lanthanum silicate oxyapatite ceramic powder as a solid oxide fuel cell electrolyte by a new modified sol gel method
D. R Elias, Nuclear and Energy Research Institute, Brazil; Sabrina L Lira, University of Sao Paulo, Brazil; Mayara Paiva, Centro Universitario Sao Camilo, Brazil; Agatha Misso, Faculdades Osvaldo Cruz, Brazil; Chieko Yamagata*, University of Sao Paulo, Brazil

(ICC-P026-2012) Dielectric Properties of Complex Barium Neodymium Titanates in Microwave Regime
Dalveer Kaur Dhanjal*, Punjab Technical University, India

(ICC-P027-2012) Fabrication and characterization of Yb:LuAG transparent laser ceramics
Dewei Luo*, Jian Zhang, Changwen Xu, Hao Yang, Hui Lin, Haiyong Zhu, Dingyuan Tang, Jan Ma, NTU, Singapore

(ICC-P028-2012) Influence of Nd2O3 and Y2O3 on the Synthesis of Ba2Ti9O20 Microwave Dielectric Ceramic Bodies
Doaa Abdel Aziz*, National Research Centre, Egypt

(ICC-P029-2012) Processing & Characterization of Textured Barium Ferrite Ceramics
Eda Aydogan*, Arcan F Dericioglu, Muharrem Timucin, Middle East Technical University, Turkey

(ICC-P030-2012) Mechanochemical Synthesis of Multiferroic BiMnO3 and YMnO3 Powders
Goran Brankovic*, Zorica Brankovic, Zorica Marinkovic Stanojevic, Milica Pocuca, Institute for multidisciplinary research - University of Belgrade, Serbia; Zvonko Jaglicic, Institute of Mathematics, Physics and Mechanics, Slovenia; Lidija Mancic, Institute of Technical Sciences SASA, Serbia; Slavko Bernik, Jozef Stefan Institute, Slovenia; Marcio De Sousa Goes, Instituto de Quimica, UNESP, Brazil

(ICC-P031-2012) Transparent AlON Ceramics Fabricated by Reactive Spark Plasma Sintering
Halide Esra Kanbur*, Burcu Apak, Gultekin Goller, Onuralp Yucel, Filiz Cinar Sahin, ITU, Turkey

(ICC-P032-2012) Rapid synthesis of rare-earth doped LNT (Li-Nb-Ti-O system) phosphors by millimeter-wave heating
Hiromi Nakano*, Keita Ozono, Toyohashi University of Technology, Japan; Tasaburo Saji, Shoji Miyake, MSP Corp., Japan

(ICC-P033-2012) NKLNT Ceramics for Multi-Layer Piezoelectric Actuator
Jae-Sung Song*, Min-Soo Kim, In-Sung Kim, Soon-Jong Jeong, Korea Electrotechnology Research Institute, Korea

(ICC-P034-2012) Fabrication of Tm:YAG ceramics for mid-infrared solid state laser applications
Jian Zhang*, Nanyang Technological University, Singapore
ICC4 Poster Presentations - Monday

(ICC-P035-2012) Deterioration Behavior Analysis of Dysprosium and Thulium co-doped Barium Titanate ceramics for Multilayer Ceramic Capacitors
Jinseong Kim*, Dowan Kim, Taimin Noh, Seol Jeon, Heesoo Lee, Pusan national university, Korea

(ICC-P036-2012) Laser Sintering of Ceramic YAG Fiber
Jonathan Goldstein*, Geoff Fair, Air Force Research Lab, USA; Heedong Lee, Hyun Jun Kim, UES, Inc., USA

(ICC-P037-2012) Luminescence properties of Eu²⁺ doped M-silicate (M=Ca, Ba, Sr) phosphors for application possibility to white LEDs
Jong Wong Chung*, Yeqing Chen, Sung Wook Park, Byung Kee Moon, Byung Chun Choi, Jung Hyun Jeong, Pukyong National University, Korea; Kiwan Jang, Changwon National University, Korea; Soung Soo Yi, Silla University, Korea

(ICC-P038-2012) Luminescence of pulsed laser deposited NaY(MoO₄)₂:Eu³⁺ thin film red phosphors on sapphire substrates
Sung Wook Park*, Jong Won Chung, Byung Kee Moon, Byung Chun Choi, Jung Hyun Jeong, Pukyong National University, Korea

(ICC-P039-2012) Modification of h-BN filler and the several properties in composite material with epoxy resin
Kenji Miyata*, Toshitaka Yamagata, Denki Kagaku Kogyo Kabushiki Kaisha, Japan; Tadafumi Adschiri, Tohoku university, Japan

(ICC-P040-2012) Impedance spectroscopy analysis of p-type Li-doped ZnO thin film effect
Kuo Chuang Chiu*, Industrial Technology Research Institute, Taiwan

(ICC-P041-2012) Dielectric Study of Ferroelectric Ceramics of Calcium Doped Barium Titanate Ba₁₋ₓCaₓTiO₃: BCT
Lhoussain Kadira*, CPR, Morocco; Abdelilah Elmesbah, FST, Morocco; Salahedine Sayouri, FSTM, Morocco

(ICC-P042-2012) Development of low cost method of synthesis for microwave dielectric applications
Manisha Yogesh Khaladkar*, Namrata S Saraf, College of Engineering Pune, India

(ICC-P043-2012) Texture and Anisotropy in Novel Lead-Free Piezoelectrics
Matthias Ehmke, Christopher Fancher, John E Blendell, Purdue University, USA; Keith J Bowman*, Illinois Institute of Technology, USA
**ICC Poster Presentations - Monday**

(ICC-P044-2012) Structural and functional properties of multiferroic B-site substituted BiFeO$_3$-based solid solutions
Mihai Calugaru*, Felicia Gheorghiu, Adelina Ianculescu, University Politehnica of Bucharest, Romania; Petronel Postolache, "Alexandru I. Cuza" University, Romania; Ovidiu Oprea, University Politehnica of Bucharest, Romania; Liliana Mitoseriu, "Alexandru I. Cuza" University, Romania

(ICC-P045-2012) Hydrothermal synthesis of BiFeO$_3$ fine particles
Miyabi Kobayashi*, Nobuhiro Kumada, Akira Miura, Yoshinori Yonesaki, Takahiro Takei, Ichiro Fujii, Satoshi Wada, University of Yamanashi, Japan

(ICC-P046-2012) Preparation and dielectric property of (Li$_{0.12}$Na$_{0.88}$)NbO$_3$-based solid solutions
Naoko Ito*, Nobuhiro Kumada, Akira Miura, Yoshinori Yonesaki, Takahiro Takei, Satoshi Wada, University of Yamanashi, Japan

(ICC-P047-2012) The Benefits of Polyalkylene Carbonate Binders (QPAC®) for Low Temperature Glass Frit or Powdered Glass in Low Temperature Processed Thick Film Applications
Peter Ferraro*, Empower Materials, USA

(ICC-P048-2012) Effect of sol ageing on dielectric properties of nanocrystalline CaCu$_3$Ti$_4$O$_{12}$ ceramic
Ranjit Kumar*, T. D Senguttuvan, National Physical Laboratory, India; M. Zulfequar, Jamia Millia Islamia, India

(ICC-P049-2012) The observation of high Seebeck coefficient in BiFeO$_3$ Bulk Ceramics
Rempei Imura*, Takeshi Yokota, Nagoya Institute of Technology, Japan; Andres Osvet, Miloslaw Batentschuk, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany; Manabu Gomi, Nagoya Institute of Technology, Japan; Christoph J Brabec, Friedrich-Alexander-Universität Erlangen-Nürnberg, Germany

(ICC-P050-2012) Electric properties and crystal structure of CaWO$_4$ ceramics prepared from powders synthesized by two processes: a traditional solid reaction method and a refined hydrothermal method
Rie Shimanouchi*, Noriyuki Kobayashi, Hitoshi Nishizawa, Kochi University, Japan

(ICC-P051-2012) Negative Permittivity and Negative Permeability of ceramic-metal composites
Run-hua Fan*, Shandong University, China

(ICC-P052-2012) Electrical functionality via metallisation of glass by Laser Ablation Backwriting
Ruth Lahoz*, Luis A Angurel, Center of Chemistry and Materials of Aragon, Spain; Jose M Pedra, Maruxa Peiro, Juan B Carda, University Jaume I, Spain; German F de la Fuente, Center of Chemistry and Materials of Aragon, Spain
ICC4 Poster Presentations - Monday

(ICC-P053-2012) Ni-based films by electrophoretic deposition of Nickel hydroxide nanoflowers and nanoflakes
Sandra Cabanas-Polo, Antonio Javier Sanchez-Herencia*, Begoña Ferrari, Instituto de Ceramica y Vidrio (CSIC), Spain

(ICC-P054-2012) Microstructure and electrical properties of LaNiO3 thin films formed by RF sputtering for the growth of PLZT on silicon and nickel substrates
Shanshan Liu*, Beihai Ma, Manoj Narayanan, Sheng Tong, Uthamalingam Balachandran, Argonne National Laboratory, USA

(ICC-P055-2012) Effect of oxygen vacancy on the dielectric relaxation of BaTiO3 thin films in a quenched state
Shenghong Yao*, CNRS-G2E lab, France; Jinkai Yuan, CNRS-Lab MSSMAT, France; Alain Sylvestre, CNRS-G2E lab, France; Patrice Gonon, CNRS-LTM, UJF, France; Jinbo Bai, CNRS-Lab MSSMAT, France

(ICC-P056-2012) Electrical characterization of sol-gel derived Na0.5Bi0.5TiO3-NaTaO3 thin films
Spela Kunej*, Asja Veber, Danilo Suvorov, Jozef Stefan Institute, Slovenia

(ICC-P057-2012) Phase formation and characteristics of La-doped BaTiO3 powders prepared via sol-gel route
Stefania Stoleriu*, Adelina Ianculescu, Catalina Vasilescu, University Politehnica of Bucharest, Romania; Maria Crisan, Malina Raileanu, Dorel Crisan, Nicolae Dragan, Institute of Physical Chemistry Ilie Murgulescu, Romanian Academy, Romania; Bogdan Vasile, University Politehnica of Bucharest, Romania

(ICC-P058-2012) Rietveld analysis, dielectric and magnetic properties of La/Ti co-doped BiFeO3 ceramic
Sujata Sanghi*, Ashish Agarwal, Reetu Dahiya, Ashima Hooda, Guru Jambheshwar University of Science & Technology, India

(ICC-P059-2012) Synthesis and Luminescence of Eu-doped Condensed Lanthanum-Calcium Phosphates
Takehiro Funamoto*, Hiroaki Onoda, Kyoto Prefectural University, Japan

(ICC-P060-2012) Electric field induced resistance changes in CaFeO3-x thin film
Takeshi Yokota*, Rempe Imurqa, Koji Ichikawa, Manabu Gomi, Graduate school of Engineering, Nagoya Institute of Technology, Japan
**ICC Poster Presentations - Monday**

**ICC-P061-2012** Preceramic Polymer Route to Macroporous Monoliths Based on Oxygen-Deficient Titanium Oxide  
Tatsuya Sato*, George Hasegawa, Kazuyoshi Kanamori, Kazuki Nakanishi, Kyoto University, Japan

**ICC-P062-2012** Piezoelectric Metrology at High Temperature  
Tim Stevenson*, Tim Comyn, University of Leeds, United Kingdom

**ICC-P063-2012** Studies of Sputter Deposited ZnO Films  
Tom N Oder*, Michael McMaster, Andrew Smith, Joshua Petrus, Nagaraju Velpukonda, Youngstown State University, USA

**ICC-P064-2012** Preparation and patterning characteristics of organic-inorganic hybrid film containing latent pigments by using microwave and photo acid generator  
Tomoji Ohishi*, Shibaura Institute of Technology, Japan

**ICC-P065-2012** Effects of Transition-Metal Species on Single-Phase Formation of (Pb,M)Sr2(Y,Ca)Cu2Oz (M: Fe, Co, Ni, Cu or Zn)  
Toshihiko Maeda*, Tairiku Tashiro, Toshiya Takahashi, Shinpei Yabe, Yasutomo Takahashi, Masakazu Haruta, Shigeru Horii, Kochi University of Technology, Japan

**ICC-P066-2012** Low Temperature Optical Thermometry through Fluorescence Intensity Ratio in Er3+, Sm3+-co doped-Yttria Stabilized Zirconia  
Yang Shen*, Tsinghua University, China; Xing Wang, Hongcai He, University of Electronic Science and Technology China, China; Yuanhua Lin, Ce-Wen Nan, Tsinghua University, China

**ICC-P067-2012** Synthesis of Monolithic Macroporous Iron Oxide via Sol-Gel Process from Ionic Precursors  
Yasuki Kido*, Kazuki Nakanishi, Akira Miyasaka, Kazuyoshi Kanamori, Kyoto University, Japan

**ICC-P068-2012** Upconversion and Photostimulated Luminescence in afterglow ceramics Tb, Sr co-doped Lu2O3  
Shi Chen, Yiquan Wu*, Alfred University, USA

**ICC-P069-2012** Effect of Additives on Electrical Resistivity of Silicon Carbide Ceramics  
Young-Wook Kim*, Kwang-Young Lim, Jung-Hye Eom, University of Seoul, Korea; Kwang Joo Kim, Konkuk University, Korea

**ICC-P070-2012** Control on the doping site in BaTiO3 with a water-soluble precursor  
Yuta Matsushima*, Katsuhiko Iwase, Shinnosuke Kasuga, Takahiro Kawai, Yamagata University, Japan
ICC4 Poster Presentations - Monday

(ICC-P071-2012) Hydrothermal Synthesis of the Multiferroic YMn$_2$O$_5$ Nanopowders
Zorica Brankovic*, Goran Brankovic, Zorica Marinkovic Stanojevic, Milica Pocuca-Nesic, Institute for Multidisciplinary Research-University of Belgrade, Serbia; Maria Aparecida Zaghete, Jose Arana Varela, Instituto de Quimica-UNESP, Brazil

(ICC-P072-2012) Getting the substrate material based on silicon carbide for nitride LEDs
Zulkhair Mansurov*, Institute of Combustion Problems, Kazakhstan; Alex Ignatiev, University of Houston, USA; Serekbol Tokmoldin, Physical Technical Institute, Kazakhstan; Renat Beissenov, al-Farabi Kazakh National University, Kazakhstan

(ICC-P073-2012) Effects of Fe$_2$O$_3$ on properties of novel heat insulation materials synthesized by molten salt method
Chengji Deng*, Jun Ding, Wenjie Yuan, Jun Li, Hongxi Zhu, Wuhan University of Science and Technology, China

(ICC-P074-2012) Improving of WC Based Hard Materials by Spark Plasma Sintering
Emrah Arslankara*, Ahmet Turan, Gultekin Goller, Onuralp Yucel, Filiz Cinar Sahin, Istanbul Technical University, Turkey

(ICC-P075-2012) Mechanism of the carbothermal synthesis of MgAl$_2$O$_4$-SiC refractory composite powders
Hongxi Zhu*, Hongjuan Duan, Wenjie Yuan, Chengji Deng, Wuhan University of Science and Technology, China

(ICC-P076-2012) Cellulose Ether Binders as Plasticization Aid for the Extrusion of Ceramic Catalysts or Diesel Particulate Filters - Status and New Developments
Roland Bayer*, Dow Wolff Cellulosics GmbH, Germany

(ICC-P077-2012) Preparation of MgO-SiC composite powders and its effect on the properties of low-carborn MgO-SiC-C refractories
Wenjie Yuan*, Zhijiang Lv, Hongxi Zhu, Chengji Deng, Wuhan University of Science and Technology, China

(ICC-P078-2012) Description of titanium carbides sintering process using Kuczynski and Frenkel sintering models
Agnieszka Gubernat*, AGH - University of Science and Technology, Poland

Asli Ustunova*, Gultekin Goller, Onuralp Yucel, Filiz Cinar Sahin, Istanbul Technical University, Turkey
(ICC-P080-2012) Influence of nitrogen pressure on SHS synthesis of γ-AlON  
Dariusz Zientara*, Jakub Domagala, Miroslaw M Bucko, AGH University of Science and Technology, Poland

(ICC-P081-2012) High toughness TiB2-40%TiC ceramic composite prepared by two-step pressureless sintering  
Yujin Wang*, Haixia Li, Songjie Wang, Zhiyi Hu, Yu Zhou, Harbin Institute of Technology, China

Mehmet Kemal Coskun, Burcu Apak, Gultekin Goller, Onuralp Yucel, Filiz Cinar Sahin*, Istanbul Technical University, Turkey

(ICC-P083-2012) Different Ceramic Fibers Under Thermal Shock  
Henry A Colorado*, UCLA, USA

(ICC-P084-2012) Development of thermochromic ceramic powder by controlling structural phase transition and thermal expansion  
Ikuo Yanase*, Seitarou Ooshima, Tatsunari Mizuno, Kouki Oomori, Hlidehiko Kobayashi, Saitama University, Japan

(ICC-P085-2012) Carbon Nanotube Addition to Zirconium Carbide-Silicon Carbide Composites  
Sumbule Sagdic, Ipek Akin, Filiz Sahin, Onuralp Yucel, Gultekin Goller*, Istanbul Technical University, Turkey

(ICC-P086-2012) Ceramics in Colombia  
Jairo Arturo Escobar*, Mariana Morales, David Carvajal, University of Los Andes, Colombia

(ICC-P087-2012) Physical properties of Latvian clays  
Inga Dusenkova, Valentina Stepanova, Janis Locs*, Juris Malers, Liga Berzina-Cimdina, Riga Technical University, Latvia

(ICC-P088-2012) Study on Thermal Properties of Aluminium Nitride/Polymer Composites for Thermal Interface Material Application  
Janqkang Chen*, Liyueh Chen, Yihao Lin, CSIST, Taiwan; Mannfu Rau, AG Materials Inc., Taiwan

(ICC-P089-2012) Comparative study on microstructures and densification of SiO2-Si3N4 ceramic compounds sintered by direct hot pressing and conventional hot pressing  
Jong-Won Shin*, Christian Frei, Umicore Thin Film Products AG, Liechtenstein
(ICC-P090-2012) Synthesis of high-density AlN by direct nitridation of molten Al with Mg vapor supply
Kohei Mizuno*, Hiroaki Matsubara, Yukihisa Takeuchi, Shunta Harada, Toru Ujihara, Nagoya University, Japan; Yuuichi Aoki, Kimio Kohara, DENSO CORP., Japan

(ICC-P091-2012) Effect of NH₄F on synthesis mullite porous ceramic from kaolinite
Lei Yuan*, Tao Liu, Chun Wang, Jingkun Yu, Northeastern university, China

(ICC-P092-2012) High Alumina Refractory Lining Performance In a Caustic Incinerator
Manabendra Maity*, Eissa Al-Zahrani, Jitendra Lohit, SABIC Technology Center, Saudi Arabia

(ICC-P093-2012) Sandblasting of 3Y-TZP: influence on roughness, damage and strength
RaviKiran Chintapalli, Fernando M Garcia, Marc Anglada*, Universitat Politècnica de Catalunya, Spain

(ICC-P094-2012) Development of Tabular Yttria for Melting and Casting of High Purity Titanium
Wenbin Dai*, Xinli Wang, Northeastern University, China; Dexuan Sun, Jiangchun Ye, Dongfang Electric Machinery Co. Ltd, China; Dexin Zhang, Northern Engineering and Technology Co. Ltd., China; Jingkun Yu, Northeastern University, China

(ICC-P095-2012) Direct Solid Sampling Chemical Analysis of High Purity Advanced Ceramics
Deborah Dunn*, Mary Halstead, DeAnn Barnhart, Glyn Churchill, Xinwei Wang, Karol Putyera, Evans Analytical Group, USA

(ICC-P096-2012) Dense Alumina/Vanadium Carbide Composite
Zbigniew Pedzich*, AGH-University of Science & Technology, Poland

(ICC-P182-2012) Simultaneous effect of transformation toughening and nanotubes on the 3Y-TZP/ CNTs fracture toughness
Mahdier Taheri, Iran University of Science and Technology, Islamic Republic of Iran; Mehdi Mazaheri*, Swiss Federal Institute of Technology Lausanne (EPFL), Switzerland; Farhad Golestani-fard, Iran University of Science and Technology, Islamic Republic of Iran
Tuesday, July 17, 2012
Interactive Technology Forum II
Sponsored by Samsung Electro-Mechanics

3:45 PM-6:30 PM
Room: River Exhibition Hall B (Level 1)

Interactive Presentations

(ICC-P208-2012) Diffusion and Adsorption Limited Simulation of Copper Electrodeposition in a High-Aspect Ratio Channel
Amanda E Sall*, Northwestern University, USA

(ICC-P209-2012) Grain Size Contributions to Lithium Ionic Conductivity in Lithium Containing Garnet Ceramics (Li₅La₃Ta₂O₁₂)
Brian Ray*, University of Kentucky, USA

(ICC-P210-2012) The near infrared absorption properties of tungsten bronzes
Chongshen Guo*, Shu Yin, Tsugio Sato, Tohoku University, Japan

(ICC-P211-2012) Photocatalytic property of CaAl₂O₄:(Eu,Nd)/(Ta,N)-doped TiO₂/Fe₂O₃ for persistent NO decomposition
Huihui Li*, Shu Yin, Tsugio Sato, Tohoku University, Japan

(ICC-P212-2012) Thermal Measurements of 2-, 3- and 4-Phase Ceramic Composites using OOF2 Analyses
Jesse P Angle*, Martha L Mecartney, University of California, Irvine, USA

(ICC-P213-2012) Thermal Conductivity of Wood-Derived Graphitic Carbon and Carbon/Copper Composites
Matthew Johnson*, Katherine Faber, Northwestern University, USA

(ICC-P214-2012) Improvement of glass making refractories
Rolf Weigand*, Heiko Hessenkemper, Anne-Katrin Rössel, TU Bergakademie Freiberg, Germany

(ICC-P215-2012) Three-dimensional microstructural evolution of lithium-ion battery cathodes on cycling
Zhao Liu*, James R Wilson, J. S Cronin, Kyle J Yakal-Kremski, Katherine T Faber, Scott A Barnett, Northwestern University, USA

(ICC-P216-2012) Processing of Single Solid Oxide Fuel Cells
Jonathan Torres*, Yan Chen, Andres Correa, Anthony Terracciano, Nina Orlovskaya, University of Central Florida, USA
ICC4 Interactive Presentations - Tuesday

(ICC-P217-2012) Thermomechanical Response of Sintering SOFC Materials
H. Lee, E. R Kupp, Gary Messing*, Penn State University, USA

(ICC-P218-2012) Characterization of crack healing in porous ceramics due to thermal cycling
Amit Pandey, Amit Shyam, Thomas R Watkins, Edgar Lara-Curzio*, ORNL, USA

(ICC-P219-2012) Facile synthesis of flexible macroporous monolith from tri- and di-functional
organoalkoxysilanes: controlling pore and surface properties for applications
Gen Hayase*, Kazuyoshi Kanamori, Kazuki Nakanishi, Kyoto Univ/Grad Schl Sci, Japan

(ICC-P220-2012) New Concept of Low Cost Ceramics made from Traditional Ceramic Fillers and
Synthesised at Room Temperature
Henry A Colorado*, UCLA, USA

(ICC-P221-2012) Development of New Body Formulations in Ceramic Tile Production for Zero
Carbon Dioxide Emission
Ozgur Cengiz*, Alpagut Kara, Anadolu University, Turkey

(ICC-P222-2012) Green fabrication of complex-shaped ceramic components by room-
temperature injection molding of ceramic suspension gels
Valerie L Wiesner*, Jeffrey Youngblood, Rodney Trice, Purdue University, USA

(ICC-P223-2012) Tapping the potential of Carbon Nano Tubes implanted in Ceramic Pore
Channels for Oily Water Treatment
Xinwei Chen*, Liang Hong, National University of Singapore, Singapore

(ICC-P224-2012) Relevance of surface chemistry of inorganic colloids in liquid-phase processing
under an Electric Field
Begoña Ferrari*, Maria Verde, Sandra Cabanas-Polo, Juan Antonio Escribano, Isabel Gonzalo-Juan,
Amador C. Caballero, Antonio Javier Sanchez-Herencia, Instituto de Ceramica y Vidrio (CSIC), Spain

(ICC-P225-2012) De-Sintering of Tin Dioxide under Two-Step Sintering Conditions
Chi Hsiu Chang*, Ricardo Castro, University of California, Davis, USA

(ICC-P226-2012) Nanoionic enhancement of $\text{BaCe}_{0.7}\text{Zr}_{1.0}\text{Y}_{0.1}\text{Yb}_{0.1}\text{O}_{3.8}$ using reduced nickel
Daniel Clark*, Jianhua Tong, Amy Morrissey, Ivar Riemanis, Ryan O'Hayre, Colorado School of
Mines, USA

(ICC-P227-2012) Synthesis of metal oxides by means of non-hydrolytic sol-gel reaction
Davide Morselli*, Nicola Florini, Federica Bondioli, University of Modena and Reggio Emilia, Italy
ICC4 Interactive Presentations – Tuesday

(ICC-P228-2012) Processing of nanostructured ceramics
Jon Binner*, Bala Vaidhyanathan, Loughborough University, United Kingdom

(ICC-P229-2012) Electric field effects on the sintering of high κ magnesium aluminate nanoparticles
Jorgen Rufner*, Cecile Bonifacio, Klaus van Benthem, Ricardo Castro, University of California, Davis, USA

(ICC-P230-2012) Mechanical properties of carbon nanotube/ alumina nanocomposites: From room to high temperatures
Mehdi Mazaheri*, Daniele Mari, Robert Schaller, EPFL: Swiss Federal Institute of Technology in Lausanne, Switzerland; Guillaume Bonnefont, Gilbert Fantozzi, INSA - Lyon: Institut National des Sciences Appliquées de Lyon, France

(ICC-P231-2012) Estimation of microstructure development of CNTs/alumina composites by electrical conductivity measurement
Naoki Ueda*, Tomohiko Yamakami, Tomohiro Yamaguchi, Morinobu Endo, Shinshu University, Japan; Naoto Saito, Shinshu University School of Health Sciences, Japan; Seiichi Taruta, Shinshu University, Japan

Nathan Taylor*, Richard M Laine, University of Michigan, USA

(ICC-P233-2012) Dispersion of ceramic particles into metallic matrix by colloidal control of powders in water
Antonio Javier Sanchez-Herencia*, Instituto de Ceramica y Vidrio (CSIC), Spain; Elena Gordo, Roberto García das Neves, University Carlos III of Madrid, Spain; Juan Antonio Escribano, Begoña Ferrari, Instituto de Ceramica y Vidrio (CSIC), Spain
Tuesday, July 17, 2012
Interactive Technology Forum II
Sponsored by Samsung Electro-Mechanics

3:45 PM-6:30 PM
Room: River Exhibition Hall B (Level 1)

Poster Presentations

(ICC-P118-2012) VOx /TiO₂ anode catalyst for oxidation of CH₄ containing 5000 ppm H₂S in SOFC cells
Alfonso Andres Garcia Rojas*, Adrien Vincent, Jing-Li Luo, Karl Chuang, Alan Sanger, University of Alberta, Canada

(ICC-P119-2012) Electrochemical Characterization of Spinel LiMn₂O₄ Particles as a Cathode Material for Lithium-Ion Batteries Prepared by Ultrasonic Spray Pyrolysis
Burçak Ebin*, Gürmen Sebahattin, Istanbul Technical University, Turkey

(ICC-P120-2012) Pressureless Sintering of Ti₃SiC₂: Microstructure and Mechanical Properties
Eduardo V Rodrigues, Celio A Costa*, COPPE/POLI/UFRJ, Brazil; Edgar Lara-Curzio, Oak Rigde National Laboratory, USA

(ICC-P121-2012) Preparation of Copper Ferrite Ceramics
Christian Kaps*, Alexander Tasch, Manuel Heidenreich, Bauhaus-Universität Weimar, Germany

(ICC-P122-2012) Using epitaxial growth to stabilize 5-Bi₂O₃ on single crystal oxide substrates
Danielle Proffit*, Northwestern University, USA; Matthew Highland, Seong Keun Kim, Guo-Ren Bai, Peter Baldo, Paul Fuoss, Argonne National Laboratory, USA; Thomas O Mason, Northwestern University, USA; Dillon Fong, Jeffrey Eastman, Argonne National Laboratory, USA

(ICC-P123-2012) Mechanical characterization of multicrystalline silicon wafers
Elena Maria Tejado*, Technical University of Madrid - CISDEM, Spain; Teresa Orellana Pérez, Fraunhofer Institute for Solar Energy Systems, Germany; José Y Pastor, Technical University of Madrid - CISDEM, Spain; Claudia Funke, Wolfgang Fütterer, Institute for Experimental Physics, Germany

(ICC-P124-2012) Joining Thin Silicon Carbide Substrates by Silicides Compounds
Elodie Jacques*, Yann Le Petitcorps, Laurence Maillé, Eric Martin, LCTS, France; Christophe Lorrette, Cédric Sauder, CEA, France; Etienne Savary, Sylvain Marinel, CRISMAT, France
(ICC-P125-2012) Porosity dependence of thermal conductivity of oxide and silicate ceramics up to 1000 °C
Eva Gregorova*, Willi Pabst, Zdenek Sofer, Ivona Sedlarova, Institute of Chemical Technology, Prague (ICT Prague), Czech Republic

(ICC-P126-2012) The effect of calcium-magnesium-aluminosilicate deposits on stress states and lifetimes of ytterbium silicate environmental barrier coatings
Fabian Stolzenburg*, Northwestern University, USA; Jonathan Almer, Argonne National Lab, USA; Kang N Lee, Rolls Royce Corp, USA; Katherine T Faber, Northwestern University, USA

(ICC-P127-2012) Improvement of boron carbide mechanical properties in B-C-Ti-Zr system
Gulnazi Tabatadze, Georgian Technical University, Georgia; Urgen G Heinrich, Technical University of Clausthal, Germany; Zviad Kovziridze*, Zviad Mestvirishvili, Georgian Technical University, Georgia

(ICC-P128-2012) Impact of impurities on the mechanical behavior of multicrystalline silicon for solar cells
José Ygnacio Pastor, Elena M Tejado*, Technical University of Madrid-CISDEM, Spain; Teresa Orellana Pérez, Fraunhofer Institute for Solar Energy Systems, Germany; Claudia Funke, Wolfgang Füttener, Institute for Experimental Physics, Germany

(ICC-P129-2012) Effect of nano SiO₂ on the polymer Ni-MH battery based on PVA/PEG-composite microporous alkaline polymer electrolyte
Liquan Li*, Yunfeng Zhu, Renxiang Wu, Nanjing University of Technology, China

(ICC-P130-2012) Surface Effects In Beta-Alumina Synthesis And Sintering For Electronic Applications
Lorena Batista Caliman*, Douglas Gouvêa, Universidade de São Paulo - USP, Brazil

(ICC-P131-2012) Effect of Freezing Gradients on Pore Network Characteristics for Freeze-Cast Alumina
Sarah M Miller*, Katherine T Faber, Northwestern University, USA

(ICC-P132-2012) Oxide nanosheet composites for solar energy harvesting
Scott Misture*, Alfred University, USA

Sergey Somov*, Solid Cell Inc., USA; Sam Ghosh, RocCera LLC, USA; Michael Alberga, James P Kelly, Olivia A Graeve, Alfred University, USA
Elaboration and electrochemical study of LSCF / 10ScSZ symmetrical cells for SOFC applications  
Sophie Beaudet Savignat*, Julien Vulliet, Max Groisil, Thierry Piquero, CEA Le Ripault, France

Double Perovskite Sr2Fe2−xMoxO6−δ as anode material for solid oxide fuel cells  
Arun Kumar Dorai, Sun-Dong Kim, Doo-Won Seo, In-sub Han, Ji-Haeng Yu, Se-Young Kim, Sang-Kuk Woo*, Korea Institute of Energy Research, Korea

Synthesis and characterization of perovskite-type cathode La0.8Sr0.2Mn1−xCuxO3−δ (0≤x≤0.3) for intermediate-temperature solid oxide fuel cells  
Taimin Noh*, Jiseung Jiseung, Jinseong Kim, Heesoo Lee, Pusan National University, Korea

Characterization of Sr0.9Ho0.1CoO3−δ as a potential cathode material for intermediate-temperature solid oxide fuel cells  
Tao Liu*, Northeastern University, China; Lin Li, Shenyang Aerospace University, China; John B Goodenough, The University of Texas at Austin, USA; Jingkun Yu, Northeastern University, China

Elastic constants and anelastic effects of oxide and silicate ceramics and composites at elevated temperature  
Willi Pabst*, Eva Gregorova, Jakub Cerny, Institute of Chemical Technology, Prague (ICT Prague), Czech Republic

Adsorption of rare earth metals from aqueous solution on sepiolite-based composite sheets  
Akira Miura*, Taiyo Furuya, Ayaka Sogo, Takahiro Takei, Nobuhiro Kumada, University of Yamanashi, Japan

The Effect of Yttria and Alumina Powder on the Transformation Behavior of Polydimetilsiloxane Derived Ceramics  
Celio A Costa, Marysilvia F Costa*, Marilia S Beltrao, COPPE/POLI/UFRJ, Brazil

Investigation of geopolymer binder formation through infrared spectroscopy  
Elodie Prud'homme*, Alexandre Autef, Fabrice Gouny, Philippe Michaud, GEMH, France; Emmanuel Joussein, GRESE, France; Fazia Fouchal, Sylvie Rossignol, GEMH, France

Effect of different sintering processes on mullite -zirconia ceramics development  
Gaida Maruta Sedmale*, Riga Technical University, Latvia; Ints Steins, Riga Technical University, Latvia; Ingunda Sperberga, Riga Technical University, Latvia; Aloizjs Patmalnieks, Latvian University, Latvia
**ICC Poster Presentations - Tuesday**

(ICC-P143-2012) Thermokinetic analysis of the CO$_2$ Chemisorption on Li$_2$ZrO$_3$. Effect of the Oxygen Addition  
Lorena Martinez-dlcruz, Heriberto Pfeiffer*, Universidad Nacional Autonoma de Mexico, Mexico

(ICC-P144-2012) Removal of phosphorus with corbicula shells from resemble waste water and powder properties of by-products  
Hiroaki Onoda*, Ryuta Matsumoto, Kyoto Prefectural University, Japan; Masamoto Tafu, Toyama National College of Technology, Japan

(ICC-P145-2012) Synthesis and characterization of materials obtained from alkali activated illite-based clays  
Ingunda Sperberga*, Andris Cimmers, Gaida Sedmale, Dainida Ulme, Riga Technical University, Latvia; Ilze Vircava, University of Latvia, Latvia

(ICC-P146-2012) Effect of Y$_2$O$_3$ on the sintering of natural magnesia  
Jingkun Yu*, Lei Yuan, Xiaoying Wang, Wenbin Dai, Pengcheng Ma, Northeastern University, China

(ICC-P147-2012) Photo-activated Enzymatic Reaction of Peroxidase Immobilized on Semiconductors  
Kai Kamada*, Ayano Moriyasu, Takuya Nakamura, Suguru Tsukahara, Nagasaki University, Japan

(ICC-P148-2012) Removal of fluoride ion in waste water by using reaction of calcium phosphate  
Masamoto Tafu*, Miki Nakai, Toyama National College of Technology, Japan; Takuya Okazaki, University of Toyama, Japan; Takeshi Toshima, Tetsuji Chohji, Toyama National College of Technology, Japan

(ICC-P149-2012) Honeycomb reactor washcoated with spinel catalysts for the reduction of NOx by C2H4  
Md. Hasan Zahir*, King Fahd University of Petroleum & Minerals, Saudi Arabia

(ICC-P150-2012) Synthesis and characterization of cement clinker containing funnel glass from cathode ray tube  
Nirut Lairaksa*, Natt Makul, Phranakhon Rajabhat University, Thailand

(ICC-P151-2012) Fabrication of Porous Ceramics by employing food additives and ceramic slurries  
Shuk-Man A Kwok, University of Melbourne, Australia; Paola Parente, Instituto de Ceramica y Vidrio (CSIC), Spain; Carolina Tallón, George V Franks, University of Melbourne, Australia; Antonio Javier Sanchez Herencia*, Instituto de Ceramica y Vidrio (CSIC), Spain
ICC4 Poster Presentations - Tuesday

(ICC-P152-2012) Adsorption of Rare Earth Elements by Inorganic Compounds for Futural Recovery from Wastes
Takahiro Takei*, Ayuka Sogo, Akira Miura, Nobuhiro Kumada, University of Yamanashi, Japan

(ICC-P153-2012) Ceramic microbeads with high specific surface area as adsorbents for purification technologies: Antibacterial doping with Copper
Tanja Yvonne Klein*, Laura Treccani, Kurosch Rezwan, University of Bremen, Germany

(ICC-P154-2012) Characterisation of Lead Free Piezoelectrics for Commercial Applications
Tim Comyn*, Tim Stevenson, Andrew Bell, University of Leeds, United Kingdom

(ICC-P155-2012) Wear properties of silicon nitride ceramics prepared by pressureless densification
Tomasz Pawlik*, Malgorzata Sopicka-Lizer, Daniel Michalik, Grzegorz Moskal, Jakub Wieczorek, Silesian University of Technology, Poland

(ICC-P156-2012) Solvothermal Synthesis and Oxygen Storage Capacity of Ce and Zr-based Mixed Oxide Nanoparticles
Tsugio Sato*, Qiang Dong, Shu Yin, Tohoku University, Japan

Wantanee Buggakupta*, Pinsiri Umponpanarat, Faculty of Science, Chulalongkorn University, Thailand; Withaya Panpa, Faculty of Industrial Technology, Thepsatri Rajabhat University, Thailand

(ICC-P158-2012) Research on Pressureless Sintering of α-Sialon-AlN-BN Powder Synthesized from Boron-rich Slag-based Mixture
Wu Junbin*, Xue Xiang Xing, Jiang Tao, Northeastern University, China

(ICC-P159-2012) Study on Rheological Properties of Suspension with α-Sialon Powder for Gel Casting
Wu Junbin*, Xue Xiang Xing, Jiang Tao, Zhang Qing, Northeastern University, China

(ICC-P160-2012) Geopolymer synthesis by the choice of mix compositions
Xiaoxiao Gao*, Philippe Michaud, GEMH, France; Emmanuel Joussein, GRESE, France; Sylvie Rossignol, GEMH, France

(ICC-P161-2012) Evaluation of removal efficiency of calcium phosphate with fluoride and heavy metal ions
Yuki Hirano*, Masamoto Tafu, Takaaki Masutani, Tetsuji Chohji, Toyama National College of Technology, Japan
ICC4 Poster Presentations - Tuesday

(ICC-P162-2012) Study of Raw and Thermally Treated Wolastonite - Based Ceramics: XRD and FTIR Studies
Ertugrul Izci*, Cem E Ozbilgin, Zeynep Murat, Anadolu University, Turkey

(ICC-P163-2012) XRD and FTIR Spectral Investigations of Raw and thermally treated Pyrophyllite from the Poturge Area, Malatya, Turkey
Ertugrul Izci*, Zeynep Murat, Cem E Ozbilgin, Anadolu University, Turkey

(ICC-P164-2012) Self-compacting Mortar Incorporating Rice Husk Ash Waste subjected to Elevated Temperatures
Gritsada Sua-iam*, Natt Makul, Phranakhon Rajabhat University, Thailand

(ICC-P165-2012) Microstructure and mechanical characteristics of microwave-assisted heating brick made from combined coal-biomass ash-limestone
Natt Makul, Apichit Krajangyao*, Phranakhon Rajabhat University, Thailand

(ICC-P166-2012) Processing of alumina-rich spinel nanopowders by liquid-feed flame spray pyrolysis (LF-FSP) to fine-grained ceramic composites.
Andrew Pottebaum*, Nathan Taylor, Richard Laine, University of Michigan, USA

(ICC-P167-2012) Synthesis nano bio ceramic powder pyro calcium phosphate via sol gel method
Behzad Mehdikhani*, standard research institute, Islamic Republic of Iran; Bahman Mirhadi, Imam khomeini international university, Islamic Republic of Iran

(ICC-P168-2012) Development of low thermal conductivity ZrO2 ceramics by La2O3 addition
Byung-Koog Jang*, Yoshio Sakka, Hideyuki Murakami, National Institute for Materials Science, Japan; Seongwon Kim, Yoon-Suk Oh, Hyung-Tae Kim, Korea Institute of Ceramic Engineering and Technology, Korea

(ICC-P169-2012) Nanostructured Ceramic Oxides and Composites for High Performance Chemical Sensing
Daniel Charles*, Yi-Kai Huang, Shan-Wei Fang, Arvind Srivastava, Jiaxing Huang, Vinayak P Dravid, Northwestern University, USA

(ICC-P170-2012) Effect of sintering temperature on the properties and structure of SiCNO ceramics
Dechang Jia*, Zhenlin Sun, Yu Zhou, Xiaoming Duan, Qian Zhang, Dan Ye, Harbin Institute of Technology, China

(ICC-P171-2012) Effect of Mg^{2+} ion as a dopant on the stability of amorphous phase transition of gamma-alumina
Deise Cristina Carvalho do Rosário*, Douglas Gouvea, University of São Paulo, Brazil
ICC4 Poster Presentations - Tuesday

Enrique Rocha-Rangel*, Jose A Rodríguez-García, Universidad Politécnica de Victoria, Mexico; Elizabeth Refugio-García, Universidad Autónoma Metropolitana, Mexico

(ICC-P173-2012) Fabrication of SiC/carbon nanofiber composites by gel-casting and their properties
Guosheng Xu*, Tomohiro Yamaguchi, Morinobu Endo, Seiichi Taruta, Isao Kubo, Shinshu University, Japan

(ICC-P174-2012) Diameter-Dependent Photocatalytic Activity of Electrospun TiO₂ Nanofiber
Heping Li*, Wei Zhang, Wei Pan, Tsinghua University, China

(ICC-P175-2012) Spark plasma sintering of Si₃N₄-based nanopowders
Ilmars Zalite*, Ints Steins, Natalja Zilinska, Janis Krastins, RTU Institute of Inorganic Chemistry, Latvia

(ICC-P176-2012) Plasma synthesis of nanosize powders of refractory compounds
Ilmars Zalite*, Janis Grabis, RTU Institute of Inorganic Chemistry, Latvia; Eriks Palcevskis, Plasma & Ceramic Technologies, Latvia

(ICC-P177-2012) Comparison of crystallographic and electrical properties of ZnO films fabricated by dry and wet processes
JeongSoo Hong*, Hajime Wagata, Ken-ichi Katsumata, Tokyo Institute of Technology, Japan; Naoki Ohashi, National Institute for Materials Science, Japan; KyungHwan Kim, Gachon University, Korea; Kiyoshi Okada, Nobuhiro Matsushita, Tokyo Institute of Technology, Japan

(ICC-P178-2012) An AFM study of nanoparticle arrangement with deposition time
Juan Antonio Escribano, Isabel Gonzalo-Juan, Antonio Javier Sanchez-Herencia*, Begoña Ferrari, Instituto de Ceramica y Vidrio (CSIC), Spain

(ICC-P179-2012) Preparation of polymethylsilsesquioxane xerogel spheres by suspension polymerization
Kazuyoshi Kanamori*, Hiroki Shigeno, Takahiro Tanaka, Kazuki Nakanishi, Kyoto University, Japan

(ICC-P180-2012) Synthesis of Rutile Nanotubes by Solvothermal Method
Yukihiro Komatsubara, Ken-ichi Katsumata, Nobuhiro Matsushita, Kiyoshi Okada*, Tokyo Institute of Technology, Japan

(ICC-P181-2012) Influence of Precursors Stoichiometry on SHS Synthesis of Ti₂AlC Powders
Leszek Chlubny*, Jerzy Lis, AGH-University of Science and Technology, Poland
**ICC4 Poster Presentations - Tuesday**

*(ICC-P183-2012) Assembling and Packing of Nanoparticles under an Electric Field*
Maria Verde, Isabel Gonzalo-Juan, Marina Villegas, Amador C. Caballero, Begoña Ferrari*, Instituto de Ceramica y Vidrio (CSIC), Spain

*(ICC-P184-2012) Experimental Investigation of Fracture Toughness in AL356-SiCp Aluminium Matrix Composite*
Mohammad M Ranjbaran*, Shahid Rajaee Teacher Training university, Islamic Republic of Iran

*(ICC-P185-2012) Zircon-Zirconia (ZrSiO$_4$-ZrO$_2$) dense ceramic composites by Spark Plasma Sintering*
Nicolas Maximiliano Rendtorff*, CETMIC, Centro de Tecnologia de Recursos Minerales y Ceramica, Argentina; Salvatore Grasso, Chunfeng Hu, Fine Particle Processing Group, Nano Ceramics Center, National Institute for Materials Science (NIMS), Japan; Gustavo Suárez, Esteban Aglietti, CETMIC, Centro de Tecnologia de Recursos Minerales y Ceramica, Argentina; Yoshio Sakka, Fine Particle Processing Group, Nano Ceramics Center, National Institute for Materials Science (NIMS), Japan

*(ICC-P186-2012) Preparation of M$_3$O$_4$ (M=Fe, Co) Particles by Using Iron and Cobalt Naphthenate by Hydrothermal Reaction*
Nobuhiro Kumada*, University of Yamanashi, Japan; Qiang Domg, Tohoku University, Japan; Akira Miura, Takahiro Takei, University of Yamanashi, Japan

*(ICC-P187-2012) Influence of PECS Temperature Variation on the Properties of the Compacted Hybrid Coreshell Powders*
Norsuria Mahmed*, Juha Larismaa, Aalto University School of Chemical Technology, Finland; Oleg Heczko, Academy of Science Czech Republic, Czech Republic; Simo-Pekka Hannula, Aalto University School of Chemical Technology, Finland

*(ICC-P188-2012) New route synthesis of zinc oxide nanostructured particles and their characterization*
Ecaterina Andronescu*, Cristina Ghitulica, Otilia Ruxandra Vasile, Bogdan S Vasile, University Politehnica from Bucharest, Romania; Eugeniu Vasile, Roxana Trusca, METAV Research and Development, Romania

*(ICC-P189-2012) Nanostructured SHS-Ceramic on Basic of Mechanoactivated Mixtures Quartz-Calcite*
Renat Beissenov*, Al-Farabi Kazakh national University, Kazakhstan; Zulkahir Mansurov, Nina Mofa, Sestager Aknazarov, Bakhtiyar Sadykov, Institute of Combustion Problems, Kazakhstan

*(ICC-P190-2012) The bottom up approach to processing ceramics is not always the best solution*
Richard M. Laine*, Nathan Taylor, Andrew Pottebaum, University of Michigan, USA
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**(ICC-P191-2012) Self-Propagating High Temperature Synthesis of Ceramic Composites Based on Silicon Carbide**
Roza Abdulkarimova*, Zulkhair Mansurov, Al-Farabi Kazakh National University, Kazakhstan

**(ICC-P192-2012) Synthesis and Reactive Sintering of ZrB₂-Based Ceramics**
Ruixing Li*, Yanshan Jiang, Bin Zhao, Beihang University, China

**(ICC-P194-2012) Influence of Ag₂O addition on crystallization process and microstructure of transparent mica glass-ceramics**
Seiichi Taruta*, Aya Mizoguchi, Tomohiko Yamakami, Tomohiro Yamaguchi, Shinshu University, Japan; Kiyoshi Okada, Tokyo Institute of Technology, Japan

**(ICC-P195-2012) Influence of oxygen non stoichiometry on the dielectric properties of BaTiO₃-δ nanoceramics**
Sophie Guillemet-Fritsch, Christophe Voisin*, Pascal Dufour, Christophe Tenailleau, CIRIMAT/CNRS, France

**(ICC-P196-2012) Layered Iron-titanate as a Physicochemically Stable Support for Hydrolase**
Takaharu Ikeda*, Suguru Tsukahara, Nagasaki University, Japan; Nobuaki Soh, Saga University, Japan; Kai Kamada, Nagasaki University, Japan

**(ICC-P197-2012) Preparation of calcium carbonate spherical hollow particles by spray drying and their properties**
Tomoya Kawamata*, Koushiro Koizumi, Yasuhiro Umemura, Takeshi Toyama, Nihon University, Japan

**(ICC-P198-2012) Spark Plasma Sintering of SiC-Carbon Nanotube Composite - Simulations Versus Experiments**
Thomas Carlson*, J. Allen, ERDC-CERL, USA; B. Devine, ERDC-ITL, USA; C. P Marsh, ERDC-CERL, USA; W. M Kriven, UIUC, USA; C. R Welch, ERDC-ITL, USA

**(ICC-P199-2012) Introduction of Silver Nanoparticles into High-porosity Hierarchically Porous Silica Monolith**
Yang Zhu*, Takanori Detani, Kazuki Nakanishi, Kazuyoshi Kanamori, Kyoto University, Japan

**(ICC-P200-2012) Study of superhydrophilic TiO₂ thin films prepared by reactive sputtering**
Yu Sup Jung*, Gachon University, Korea; Jeong Soo Hong, Tokyo Institute of Technology, Japan; Kyung Hwan Kim, Gachon University, Korea

Zhengguo Yan*, Wenbin Dai, Tao Liu, Jingkun Yu, Northeastern University, China
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**(ICC-P202-2012) Study of preparation and effect of Si$_2$ON$_2$ phase on the properties of SiC composite**
Zviad Kovziridze*, Georgian Technical University, Georgia; Jurgen G Heinrich, Technical University of Clausthal, Germany; Natela Nizharadze, Georgian Technical University, Georgia

**(ICC-P203-2012) Heat Transfer Nanofluids by Design: Copper Decorated Graphene Suspensions**
Elena Timofeeva, Michael Moravek, Dileep Singh*, Argonne National Laboratory, USA

**(ICC-P204-2012) Aqueous tape casting processing on the level of transparency of ceramics**
Felipe Orgaz Orgaz*, Instituto de Ceramica y Vidrio, Spain; Maria Teresa Gomez del Rio, Universidad Rey Juan Carlos, Spain; Rosa Moronta, instituto de Ceramica y Vidrio, Spain; Jesus Rodriguez, Pedro Poza, Universidad Rey Juan Carlos, Spain

**(ICC-P205-2012) Investigation of MoS$_2$ and BN nanolubricants and their effect on tribological behavior of combustion engine parts**
Elena Timofeeva*, Nicholas Demas, Jules Routbort, George Fenske, Argonne National Laboratory, USA

**(ICC-P206-2012) Investigation of deformation and demolding behaviors for precision glass molding**
Hiroshi Ikeda*, Haruya Kasa, Hiroyuki Mayama, Hiroaki Hishiyama, Junji Nishii, Hokkaido University, Japan

**(ICC-P207-2012) Laser Synthesis of Rare Earth Aluminate Coatings**
Isabel de Francisco, V. V Lennikov, Instituto de Ciencia de Materiales de Aragón (CSIC-University Zaragoza), Spain; J. A Bea, Aragon Institute of Engineering Research (I3A), University of Zaragoza, Spain; A. Vegas, Instituto de Química-Física Rocasolano, CSIC, Spain; J. B Carda, Universitat Jaume I, Spain; German F de la Fuente*, Instituto de Ciencia de Materiales de Aragón (CSIC-University Zaragoza), Spain