

## **Special Symposium: Emerging Technologies and Future Aspects for Ceramics**

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

- Emerging and innovative technologies for sustainable society
  - Future aspects and R&D strategies
- in the various technical fields of ceramics and glasses.

*Organizers:*

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

### **Monday, November 15**

Room: Conference Hall

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#### **14:15 - 16:15**

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

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#### **14:15 - 14:45**

##### **SS-001 The Role of Bioceramics in the Medical Technologies of the Future (Invited)**

P. D. Williams; Wake Forest Institute of Regenerative Medicine, USA

#### **14:45 - 15:15**

##### **SS-002 The Latest Progress of SICCAS in Research (Invited)**

H. Luo; Shanhai Institute of Ceramics, CAS, China

#### **15:15 - 15:45**

##### **SS-003 Global Issues and Challenges for Ceramists in 21C (Invited)**

S. Baik; Pohang University of Science and Technology, Korea

#### **15:45 - 16:15**

##### **SS-004 Research and Technology Development in Ceramics in India: Current Status and Future Directions (Invited)**

G. Sundararajan, Y. R. Mahajan; International Advanced Research Centre for Powder Metallurgy and New Materials, India

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

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#### **16:30 - 19:00**

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

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#### **16:30 - 17:00**

##### **SS-005 Novel Nanostructured Ceramics for Thermoelectric Conversion (Invited)**

K. Koumoto<sup>1,2</sup>, Y. Wang<sup>1</sup>, C. Wan<sup>1,2</sup>, N. Wang<sup>3</sup>, R. Zhang<sup>4</sup>; <sup>1</sup>Nagoya University, Japan, <sup>2</sup>Japan Science and Technology Agency, Japan, <sup>3</sup>University of Electronic Science and Technology of China, China

#### **17:00 - 17:30**

##### **SS-006 Future Directions in Ferroelectrics Research: An Academic Perspective (Invited)**

N. Setter; Ecole Polytech Fed de Lausanne, Switzerland



# Special Symposium

17:30 - 18:00

**SS-007 Current Status and Future Aspects of R&D Activities on Electroceramic Components in Japanese Industry (Invited)**

H. Takagi; Murata Manufacturing Co., Ltd., Japan

18:00 - 18:30

**SS-008 Multifunctional Oxide Heterostructures (Invited)**

R. Ramesh; University of California, Berkeley, USA

18:30 - 19:00

**SS-009 Recent Progress in New Superconducting Materials (President- Designated)**

H. Hosono; Tokyo Institute of Technology, Japan

## Tuesday, November 16

Room: Conference Hall

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**9:00 - 11:45**

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

9:00 - 9:30

**SS-010 Material Science Gives Some Solutions for Problems We Face: New Materials with New Functions (Invited)**

Y. Shimakawa; Kyoto University, Japan

9:30 - 10:00

**SS-011 Advanced Functional Oxide Materials (Invited)**

M. Martin; Aachen University, Germany

10:00 - 10:30

**SS-012 The Advanced Oxidation Process For Photodecomposition of Organic Dyes by Naturally Abundant Iron Oxide-Based Materials (Invited)**

K. Okada; Tokyo Institute of Technology, Japan

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

10:45 - 11:15

**SS-013 Predicting Properties of Ca–Al–O Glass Electrides (Invited)**

P. V. Sushko; University College London, UK

11:15 - 11:45

**SS-014 Fabrication and Electronic Properties of TiO<sub>2</sub>-based Transparent Conducting Thin Films (Invited)**

T. Hasegawa<sup>1,2</sup>; <sup>1</sup>Univeristy of Tokyo, Japan, <sup>2</sup>Kanagawa Academy of Science and Technology, Japan

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**16:30 - 19:00**

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

16:30 - 17:00

**SS-015 Cellular Ceramics: Past, Present and Future (Invited)**

P. Colombo; University of Padova, Italy, The Pennsylvania State University, USA

17:00 - 17:30

**SS-016 Inorganic Membrane Development in NGK (Invited)**

H. Sakai; NGK Insulators, Ltd., Japan

17:30 - 18:00

**SS-017 Recent Developments and Future Prospects of Mesoporous Ceramic Materials (Invited)**

K. Kuroda; Waseda University, Japan

18:00 - 18:30

**SS-018 Polymer Derived Processing Technologies (Invited)**

R. Riedel; Technische Universität Darmstadt, Germany

18:30 - 19:00

**SS-019 Novel Visible Light Sensitive TiO<sub>2</sub>-based Photocatalysts and their Virucidal and Bactericidal Effects (Invited)**

K. Hashimoto; The University of Tokyo

## Wednesday, November 17

Room: Conference Hall

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**9:00 - 12:15**

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

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9:00 - 9:30

**SS-020 Ultra High Temperature Ceramics (Invited)**

S. M. Johnson; NASA Ames Research Center, USA

9:30 - 10:00

**SS-021 Prospects and Challenges of Damage Tolerant Layered Ternary Carbides and Nitrides (MAX Phases) (Invited)**

Y. Zhou; Institute of Metal Research, CAS, China

10:00 - 10:30

**SS-022 Ceramic R&D Technology in Ube Industries for Sustainable Society (Invited)**

T. Ishikawa; Ube Industries, Ltd., Japan

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

10:45 - 11:15

**SS-023 Ceramic Materials and Technologies for Energy Systems (Invited)**

A. Michaelis; Fraunhofer, IKTS, Germany

11:15 - 11:45

**SS-024 Ceramic Integration Technologies for Advanced Energy Systems: *Critical Needs, Technical Challenges, and Opportunities* (Invited)**

M. Singh; NASA Glenn Research Center, USA

11:45 - 12:15

**SS-025 Fiber Reinforced Ceramic Matrix Composites (Invited)**

R. J. Diefendorf; Clemson University, USA

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**13:45 - 17:00**

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

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13:45 - 14:15

**SS-026 Advanced Ceramic Materials for Next-Generation Nuclear Applications (Invited)**

J.E. Marra; Savannah River; National Laboratory, USA

14:15 - 14:45

**SS-027 Mass Production, Applications and Safety Issue of Multi-Walled Carbon Nanotubes (Invited)**

M. Endo; Shinshu University, Japan

14:45 - 15:15

**SS-028 Ceramic Technologies for Sustainability: Perspectives from Siemens Corporate Technology (Invited)**

W. Rossner; Siemens AG, Germany

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



# Special Symposium

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15:30 - 16:00

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

C. Delmas<sup>1</sup>, R. Berthelot<sup>1,2</sup>, D. Carlier<sup>1</sup>, C. Didier<sup>1</sup>, M. Guignard<sup>1</sup>, C. Ju-Hsiang<sup>3</sup>, B. J. Hwang<sup>3</sup>, F. Weill<sup>1</sup>;

<sup>1</sup>Université de Bordeaux, France, <sup>2</sup>CEA-Grenoble, France, <sup>3</sup>National Taiwan University of Science and Technology, Taiwan

16:00 - 16:30

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

L. Han; National Institute for Materials Science, Japan

16:30 - 17:00

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

K. Hirao; Kyoto University, Japan