

# Global Young Investigator Forum

Wednesday, January 25, 2012

## **Frontiers in Ceramic Sensors I**

1:30 PM-3:10 PM

Room: Coquina Salon G

Session Chair(s): Thomas Fischer, J. Daniel Prades

**1:30 PM**

**(ICACC-GYIF-001-2012) A hunt for scientific opportunities: the business of science (Invited)**

Elena V Timofeeva\*, Argonne National Laboratory, USA

**1:50 PM**

**(ICACC-GYIF-002-2012) Influence of the electrodes on a SnO<sub>2</sub> thick film sensor: DRIFTS and sensors study (Invited)**

Sven Rank\*, Nicolae Barsan, Udo Weimar, University of Tuebingen, Germany

**2:10 PM**

**(ICACC-GYIF-003-2012) Field-effect gas sensor for high water vapor environments (Invited)**

Olga Casals Guillen\*, University of Barcelona, Spain; Thomas Becker, EADS Deutschland GmbH, Germany; Philippe Godignon, IMB-CNM-CSIC, Spain; Albert Romano-Rodriguez, University of Barcelona, Spain

**2:30 PM**

**(ICACC-GYIF-004-2012) FSP synthesized In<sub>4</sub>Sn<sub>3</sub>O<sub>12</sub>, a novel gas sensing material (Invited)**

J. Kemmler\*, University of Tübingen, Germany; S. Pokhrel, L. Mädler, University of Bremen,

Germany; N. Barsan, U. Weimar, University of Tübingen, Germany

**2:50 PM**

Break

## **Frontiers in Ceramic Sensors II**

3:10 PM-4:50 PM

Room: Coquina Salon G

Session Chair(s): Sven Rank, Elena Timofeeva

**3:10 PM**

**(ICACC-GYIF-005-2012) Synthesis and Application of Doped TiO<sub>2</sub> based nano structures (Invited)**

Yakup Goenuellue\*, Bilge Saruhan Brings, German Aerospace Center, Germany

**3:30 PM**

**(ICACC-GYIF-006-2012) Chemical sensors based on individual metal oxide nanowires: breakthroughs accomplished and pending challenges (Invited)**

J. Daniel Prades\*, Universitat de Barcelona, Spain; Francisco Hernandez-Ramirez, Institut de Recerca en Energia de Catalunya (IREC), Spain; Roman Jimenez-Diaz, Albert Romano-Rodriguez, Universitat de Barcelona, Spain; Joan Ramon Morante, Institut de Recerca en Energia de Catalunya (IREC), Spain

**3:50 PM**

**(ICACC-GYIF-007-2012) Thermal and chemical stability of metal oxide nanowire based gas sensors (Invited)**

Andrea Ponzoni\*, Camilla Baratto, Elisabetta Comini, Guido Faglia, Giorgio Sberveglieri, CNR-IDASC SENSOR Lab and University of Brescia, Italy

**4:10 PM**

**(ICACC-GYIF-008-2012) Optimization of an LSAM electroceramic for use in an oxygen sensor (Invited)**

Kristen Pappacena\*, Elena Timofeeva, Dileep Singh, Jules Routbort, Argonne National Laboratory, USA

**4:30 PM**

**(ICACC-GYIF-009-2012) Click chemistry based magnetic nanoparticles for targeted drug delivery on breast carcinoma**

B. N. Prashanth Kumar\*, Nagaprasad Puvvada, Shashi Rajput, Gautam Dey, Amita Pathak, Mahitosh Mandal, Indian Institute of Technology, India

## **GYIF Poster Session**

5:00 PM-7:30 PM

Room: Exhibition Hall, Ocean Center

**(ICACC-GYIF-P165-2012) Influence of Pd on oxygen exchange in nanocrystalline tin dioxide**

Artem Marikutsa\*, Dmitry Frolov, Yuri Kotovshikov, Igor Morozov, Alexander Boltalin, Anna Fedorova, Marina Rumyantseva, Alexander Gaskov, Moscow State University, Russian Federation; Ekaterina Sadovskaya, Boreskov Institute of Catalysis, Russian Federation

**(ICACC-GYIF-P166-2012) Nanocrystalline ferrites  $\text{Ni}_x\text{Zn}_{(1-x)}\text{Fe}_2\text{O}_4$ : acid sites on the surface and sensor properties**

Alexey Kazin\*, Marina Rumyantseva, Moscow State University, Russian Federation; Victor Prusakov, Igor Suzdalev, Yuri Maximov, Vladimir Imshennik, Sergey Novochikhin, Semenov Institute of Chemical Physics, Russian Federation; Alexander Gaskov, Moscow State University, Russian Federation

**(ICACC-GYIF-P167-2012) Influence of ZnO(Ga) defect structure on sensor properties to ammonia**

Nataliya Vorobyeva\*, Marina Rumyantseva, Alexander Gaskov, Elizaveta Konstantinova, Diana Grishina, Moscow State University, Russian Federation

**(ICACC-GYIF-P168-2012) Oxygen isotope exchange study on SiO<sub>2</sub>-supported mixed 3d-metal oxides with spinel structure**

Dmitry Frolov\*, Yuri Kotovshikov, Igor Morozov, Alexander Boltalin, Anna Fedorova, Moscow State University, Russian Federation; Ekaterina Sadovskaya, Boreskov Institute of Catalysis, Russian Federation; Vladimir Ivanov, Kurnakov Institute of General and Inorganic Chemistry, Russian Federation

**(ICACC-GYIF-P169-2012) Photoconductivity of nanocrystalline SnO<sub>2</sub> sensitized with colloidal CdSe quantum dots**

Anastasiya Babynina\*, Roman Vasiliev, Olga Maslova, Marina Rumyantseva, Alexander Gaskov, Moscow State University, Russian Federation

## **Thursday, January 26, 2012 Frontiers in Ceramic Hybrid Materials and Composites for Biomedical Applications**

8:00 AM-10:00 AM

Room: Coquina Salon G

Session Chair(s): Satoko Tasaki, Eva Hemmer

**8:00 AM**

**(ICACC-GYIF-010-2012) Fluorescent Carbon Nanowires for Targeted Drug Delivery for Breast Cancer Therapy and Optical Imaging (Invited)**

Nagaprasad Puvvada\*, B. N. Prashanth Kumar,

Narendra Babu, Himani Kalita, Mahitosh Mandal, Amita Pathak, Indian Institute of Technology Kharagpur, India

**8:20 AM**

**(ICACC-GYIF-011-2012) Design, Fabrication and *In Situ* Surface Modification of the Selectively Doped Advanced ZnO Nanohybrid Materials and their Biological Activities (Invited)**

Keerthi Raj Namratha\*, K. Byrappa, S. Rajesh, V. Ravishankar Rai, University of Mysore, India

**8:40 AM**

**(ICACC-GYIF-012-2012) Covalent Immobilization and Time Dependent Release of Sparfloxacin on SiO<sub>2</sub>@FeOx Nanoparticles (Invited)**

Laura Wortmann\*, University of Cologne, Germany; Nadia E. A. El-Gamel, Cairo University, Egypt; Karim Arroub, Sanjay Mathur, University of Cologne, Germany

**9:00 AM**

**(ICACC-GYIF-013-2012) Mesoporous silica particle synthesis for use as potential adjuvants (Invited)**

S. Gabrielsson, Karolinska Hospital and Institute, Sweden; A. Garcia-Bennett, Natalia Kupferschmidt\*, Uppsala University, Sweden

**9:20 AM**

**(ICACC-GYIF-014-2012) Bio-inspired synthesis of bone-like matrix (Invited)**

Yan Wang\*, Nadine Nassif, Thierry Azaïs, Guillaume Laurent, Marie-Madeleine Giraud-Guille, Florence Babonneau, University Pierre et Marie Curie (UPMC), France

**9:40 AM**

Break

## Frontiers in Ceramic Chemistry and Biomedical Applications

10:00 AM-12:00 PM

Room: Coquina Salon G

Session Chair(s): Andrea Ponzoni, Laura Wortmann

**10:00 AM**

**(ICACC-GYIF-015-2012) Fabrication of Ceramics Implants with Biocompatibility Structures by Using Laser Scanning Stereolithography (Invited)**

Satoko Tasaki\*, Soshu Kirihara, Osaka University, Japan

**10:20 AM**

**(ICACC-GYIF-016-2012) PEG-*b*-PAAc Modified Gd<sub>2</sub>O<sub>3</sub>:Er<sup>3+</sup>, Yb<sup>3+</sup> Nanostructures as Over-1000-nm Near-Infrared Fluorescence Biomarkers (Invited)**

Eva Hemmer\*, Tomoyoshi Yamano, Hiroyuki Takeshita, Takanori Fujiki, Hidehiro Kishimoto, Tokyo University of Science, Japan; Ron B Goldfarb, National Institute of Standards and Technology (NIST), USA; Kohei Soga, Tokyo University of Science, Japan

**10:40 AM**

**(ICACC-GYIF-017-2012) Immunotoxicity Assessment of Carbon-Based Nanomaterials (Invited)**

F. Torres-Andon\*, Karolinska Institutet, Sweden; L. Xiao, University of Cologne, Germany; H. Salminen-Mankonen, S. Tuomela, University of Turku and Abo Akademi University, Finland; R. Autio, Tampere University of Technology, Finland; R. Lahesmaa, University of Turku and Abo Akademi University, Finland; A. Shvedova, West Virginia University, USA; S. Mathur, University of Cologne, Germany; B. Fadeel,

Karolinska Institutet, Sweden

**11:00 AM**

**(ICACC-GYIF-018-2012) Novel scaffolds made from metallic ion doped bioactive glasses: fabrication and characterization (Invited)**

Alexander Hoppe\*, Institute of Biomaterials, Germany; Daniel Hiller, Ulrich Kneser, University of Erlangen, Germany; Aldo R Boccaccini, Institute of Biomaterials, Germany

**11:20 AM**

**(ICACC-GYIF-019-2012) Science in between Fun, Funding and Fundamentals (Invited)**

Thomas Fischer\*, University of Cologne, Germany

**11:40 AM**

**(ICACC-GYIF-020-2012) On the optical measurement of interlaminar stress-strain response of double notched compression specimens from woven Carbon/Carbon composites (Invited)**

Thomas Krause\*, University of Bremen, Germany; Sefan Ladisch, Fraunhofer Institute for Mechanics of Materials, Germany; Kamen Tushtev, University of Bremen, Germany; Ralf Schäuble, Fraunhofer Institute for Mechanics of Materials, Germany; Georg Grathwohl, University of Bremen, Germany; Dietmar Koch, Institute of Structures and Design, Germany

## **Frontiers in Ceramic Energy Generation and Storage**

1:30 PM-3:30 PM

Room: Coquina Salon G

Session Chair(s): Karra Raveendran Girish Karthik, Lucky Sikhvivilu

**1:30 PM**

**(ICACC-GYIF-021-2012) Efficient dye sensitized solar cell using developed transparent conductive films (Invited)**

Diptiranjan Sahu\*, University of the Witwatersrand, South Africa

**1:50 PM**

**(ICACC-GYIF-022-2012) Electrospinning as a Versatile Method for Production of Ceramic and Composite Nanofibers (Invited)**

Mehtap Büyükyazi, Ashish Lepcha, Sanjay Mathur, Robin von Hagen\*, University of Cologne, Germany

**2:10 PM**

**(ICACC-GYIF-023-2012) Design and characterization of inorganic/organic nanohybrid materials for solar cell applications (Invited)**

Satoshi Makuta\*, Ali Azarifar, Yasuhiro Tachibana, Royal Melbourne Institute of Technology (RMIT University), Australia

**2:30 PM**

**(ICACC-GYIF-024-2012) Synthesis and characterization of down-converting nanoparticles/PMMA nanocomposites for improving photovoltaic silicon solar cell efficiency (Invited)**

Marta Dai Pre'\*, Alessandro Martucci, Universita' di Padova, Italy

**2:50 PM**

**(ICACC-GYIF-025-2012) Glass ceramic electrolytes for protecting Li-anodes in Lithium ion/air batteries: Fabrication and characterization (Invited)**

Nutan Gupta\*, Rachid Yazami, Madhavi Srinivasan, Nanyang Technological University, Singapore

**3:10 PM**

Break

# Frontiers in Ceramic Characterization and Catalytical Properties

3:30 PM-5:50 PM

Room: Coquina Salon G

Session Chair(s): Diptiranjana Sahu, Robin von Hagen

**3:30 PM**

**(ICACC-GYIF-026-2012) Electrical characterization of individual metal-oxide nanowires using AC impedance spectroscopy (Invited)**

K.r.g. Karthik\*, K. B Jinesh, Y. Huang, S. G Mhaisalkar, Nanyang Technological University, Singapore

**3:50 PM**

**(ICACC-GYIF-027-2012) Computational and Experimental studies on doped NaTaO<sub>3</sub> photocatalysts (Invited)**

Pushkar Kanhere\*, Nanyang Technological University, Singapore; Jianwei Zheng, Institute of High Performance Computing, Singapore; Zhong Chen, Nanyang Technological University, Singapore

**4:10 PM**

**(ICACC-GYIF-028-2012) Hierarchically ordering of hybrid ceramic catalysts (Invited)**

Michael Adam\*, Michaela Wilhelm, Georg Grathwohl, University of Bremen, Germany

**4:30 PM**

**(ICACC-GYIF-029-2012) Effects of Synthesis Conditions and Thermal Treatment of Nanostructured Materials on Textural Properties (Invited)**

Lucky Sikhwivhilu\*, Suprakas Sinha Ray, National Centre for Nano-Structured Materials, South Africa

**4:50 PM**

**(ICACC-GYIF-030-2012) Properties of organic semiconductor-metal oxide nanowire composite transistors (Invited)**

S. Cheng\*, N. Mathews, L. H Wong, S. G Mhaisalkar, Nanyang Technological University, Singapore

**5:10 PM**

**(ICACC-GYIF-031-2012) XAFS study of mixed metal oxide Cu<sub>0.6</sub>Co<sub>1.2</sub>Mn<sub>1.2</sub>O<sub>x</sub> with spinel structure (Invited)**

Anna Fedorova\*, Dmitry Frolov, Igor Morozov, Moscow State University, Russian Federation; Yuri Zubavichus, Kurchatov Institute National Research Centre, Russian Federation

**5:30 PM**

**(ICACC-GYIF-032-2012) Enhanced charge separation for high efficiency photocatalytic hydrogen production (Invited)**

Shaohua Shen\*, Xi'an Jiaotong University, China

Friday, January 27, 2012

## Frontiers in Hybrid Materials and Composites

8:00 AM-10:00 AM

Room: Coquina Salon G

Session Chair(s): Artem Marikutsa, Lisa Brueckmann

**8:00 AM**

**(ICACC-GYIF-033-2012) Dielectric and Ferroelectric Studies of SBN-PVDF Composites (Invited)**

Santa Naresh Kumar\*, Pawan Kumar, National Institute of Technology, India

**8:20 AM**

**(ICACC-GYIF-034-2012) Microstructure, oxidation resistance and mechanical**

**properties of fiber bonded silicon carbide ceramics (Invited)**

Maria Carmen Vera\*, Joaquin Ramirez-Rico, Julian Martinez Fernandez, Universidad de Sevilla - CSIC, Spain; Mritjunyay Singh, NASA Glenn Research Center, USA

**8:40 AM**

**(ICACC-GYIF-035-2012) Mechanical Properties of Topologically Interlocked Ceramic-Based Structures with Various Degrees of Porosity (Invited)**

Andrey Molotnikov, Monash University, Australia; Thomas Krause\*, Mateus Carlesso, Janine Rente, Kuroschi Rezwan, University of Bremen, Germany; Dietmar Koch, German Aerospace Center, Germany; Yuri Estrin, Monash University, Australia

**9:00 AM**

**(ICACC-GYIF-036-2012) Graphitic carbon obtained from pyrolysis of natural precursors (Invited)**

Antonio Gutierrez-Pardo\*, Joaquin Ramirez-Rico, Julian Martinez Fernandez, Universidad de Sevilla - CSIC, Spain

**9:20 AM**

**(ICACC-GYIF-037-2012) Mechanical property of CNT-dispersed Si<sub>3</sub>N<sub>4</sub> ceramics (Invited)**

Sara Yoshio\*, Mitsuaki Matuoka, Junichi Tatami, Toru Wakihara, Katsutoshi Komeya, Takeshi Meguro, Yokohama National University, Japan

**9:40 AM**

Break

## **Frontiers in Precursor and Ceramic Chemistry**

10:00 AM-12:00 PM

Room: Coquina Salon G

Session Chair(s): Kristen Pappacena, Yakup

Goenuellue

**10:00 AM**

**(ICACC-GYIF-038-2012) New and well analysed route to obtain water soluble gold, gold/silver or gold/copper Nanoparticles by hydrolysing [Au(CF<sub>3</sub>)<sub>2</sub>]-species (Invited)**

David Zopes\*, Wieland Tyrra, Sanjay Mathur, University of Cologne, Germany

**10:20 AM**

**(ICACC-GYIF-039-2012) Thermal barrier coatings on fluorine treated  $\gamma$ -TiAl alloys**

Nadine Niessen\*, R. Braun, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany; S. Friedle, M. Schütze, DECHEMA e.V, Germany

**10:40 AM**

**(ICACC-GYIF-040-2012) Substituent effects on the mononuclear and dinuclear iodotrimethylplatinum(IV) complexes of Pyridines (Invited)**

Biswa Nath Ghosh\*, Michael Serafin, Justus-Liebig-University Giessen, Germany; Dieter Lentz, University of Berlin, Germany; Sabine Schlecht, Justus-Liebig-University Giessen, Germany

**11:00 AM**

**(ICACC-GYIF-041-2012) New Air-Stable and Volatile Heteroarylalkenolate palladium(II) and platinum (II) Complexes (Invited)**

Lisa Brückmann\*, Wieland Tyrra, Sanjay Mathur, University of Cologne, Germany

**11:20 AM**

**(ICACC-GYIF-042-2012) Synthesis of metaloxides via hydrothermal and microwave technique**

Thomas Lehnen\*, Sanjay Mathur, University of Cologne, Germany

**11:40 AM**

**(ICACC-GYIF-043-2012) Single crystal growth**

**of ZrMo<sub>2</sub>O<sub>8</sub> (Invited)**

Mohammad Imteyaz Ahmad\*, Mufit Akinc,  
Iowa State University, USA