

# 8<sup>TH</sup> PACIFIC RIM CONFERENCE ON CERAMIC AND GLASS TECHNOLOGY

Includes the 2009 Annual Meeting of the International Commission on Glass (ICG)

A World of Science



**PACRIMS**

and Technology

May 31 – June 5, 2009

Hyatt Regency Vancouver

Vancouver, British Columbia, Canada

[www.ceramics.org/pacrim8](http://www.ceramics.org/pacrim8)

## MEETING GUIDE

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## MEETING REGULATIONS

The American Ceramic Society is a nonprofit scientific organization that facilitates the exchange of knowledge meetings and publication of papers for future reference. The Society owns and retains full right to control its publications and its meetings. The Society has an obligation to protect its members and meetings from intrusion by others who may wish to use the meetings for their own private promotion purpose. Literature found not to be in agreement with the Society's goals, in competition with Society services or of an offensive nature will not be displayed anywhere in the vicinity of the meeting. Promotional literature of any kind may not be displayed without the Society's permission and unless the Society provides tables for this purpose. Literature not conforming to this policy or displayed in other than designated areas will be disposed. The Society will not permit unauthorized scheduling of activities during its meeting by any person or group when those activities are conducted at its meeting place in interference with its programs and scheduled activities. The Society does not object to appropriate activities by others during its meetings if it is consulted with regard to time, place, and suitability. Any person or group wishing to conduct any activity at the time and location of the Society meeting must obtain permission from the Executive Director, giving full details regarding desired time, place and nature of activity.

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# Welcome to PACRIM 8 in Vancouver!

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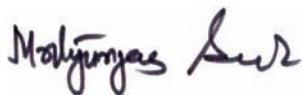
Welcome to the 8th Pacific Rim Conference on Ceramic and Glass Technology (PACRIM 8) in the great city of Vancouver! This conference is the eighth in a series of international conferences that provided a global forum for presentations and information exchange on the latest emerging ceramic and glass technologies. The conference series began in 1993, and was last organized by the American Ceramic Society in 2005, in Maui, Hawaii. Over the years, PACRIM conferences have established a strong reputation for state-of-the-art presentations and information exchange on the cutting-edge ceramic and glass technologies. They have facilitated global dialogue and discussion with leading global experts, practitioners, and end-users.

The plenary session entitled "Global Megatrends: Challenges and Opportunities for Ceramics" will generate important discussion on where each particular field is heading on a global scale. The technical program will include more than 1050 state-of-the-art presentations from more than 41 countries (invited and contributed talks and posters) and information exchange on the latest emerging ceramic technologies. We hope to provide excellent opportunities to facilitate global dialogue and discussion with leading world experts. It will also provide a forum for knowledge sharing and for making new contacts with peers from different continents.

An International Fulrath Symposium on the role of new ceramic technologies for sustainable society has been organized in honor of Professors N. Ichinose and R.C. Bradt, who have made tremendous contributions to the Richard M. Fulrath award program and tirelessly promoted the friendship among Japanese and U.S. researchers.

I would also like to welcome the delegates from the International Commission on Glass (ICG) and International Ceramic Federation (ICF), as well as members from the Glass and Optical Materials Division and other divisions of The American Ceramic Society.

I would like to invite all of you to take advantage of this unique opportunity to visit the great city of Vancouver and actively participate in this conference. We hope to provide an excellent forum for interaction and developing friendships with participants from various continents, who are involved in research, development, engineering, manufacturing, and application of ceramic and glass materials. I am looking forward to seeing all of you in Vancouver!



Dr. Mrityunjay Singh  
Chairman, PACRIM-8  
Ohio Aerospace Institute  
NASA Glenn Research Center  
Cleveland, OH (USA)



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[www.icdd.com](http://www.icdd.com) ❖ [www.dxicdd.com](http://www.dxicdd.com)

# PACRIM8 Schedule At A Glance

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## **Sunday, May 31, 2009**

Conference Registration & Membership Area	3 PM – 7 PM	Regency Foyer
Speaker Ready Room	3 PM – 6 PM	King George
Welcome Reception	5 PM – 7 PM	Perspectives Level

## **Monday, June 1, 2009**

Conference Registration & Membership Area	7:30 AM – 6 PM	Regency Foyer
Speaker Ready Room	8 AM – 4 PM	King George
Companion Coffee	8 AM – 10 AM	Windsor
Student Coffee & Pastries with ACerS	8 AM – 9 AM	English Bay
PACRIM Opening Remarks and Plenary Session	9 AM – 12 PM	Regency C/D/E/F
Lunch On Own	12 PM – 1:20 PM	
Concurrent Technical Sessions	1:20 PM – 6 PM	
ICG and GOMD Glass Plenary Session	1:20 PM – 5:15 PM	Regency D

## **Tuesday, June 2, 2009**

Conference Registration & Membership Area	7:30 AM – 6 PM	Regency Foyer
Speaker Ready Room	8 AM – 4 PM	King George
Companion Coffee	8 AM – 10 AM	Windsor
Concurrent Technical Sessions	8:30 AM – 12 PM	
Lunch On Own	12 PM – 1:20 PM	
Poster Session Set-Up	1 PM – 4 PM	Regency C/D
Concurrent Technical Sessions	1:20 PM – 6 PM	
Poster Session	5 PM – 8 PM	Regency C/D

## **Wednesday, June 3, 2009**

Conference Registration & Membership Area	7:30 AM – 12:30 PM	Regency Foyer
Speaker Ready Room	8 AM – 12 PM	King George
Concurrent Technical Sessions	8:30 AM – 12:00 PM	
Clear As Glass Tutorials	8:30 AM – 12 PM	Regency E
Free Afternoon	12 PM	

## **Thursday, June 4, 2009**

Conference Registration & Membership Area	8 AM – 6 PM	Regency Foyer
Speaker Ready Room	8 AM – 4 PM	King George
Concurrent Technical Sessions	8:30 AM – 12 PM	
Lunch On Own	12 PM – 1:20 PM	
Concurrent Technical Sessions	1:20 PM – 6 PM	
Conference Dinner	7 PM – 9:30 PM	Regency C/D/E/F

## **Friday, June 5, 2009**

Conference Registration & Membership Area	8 AM – 12 PM	Regency Foyer
Concurrent Technical Sessions	8:30 AM – 12 PM	

# ACerS, PACRIM & ICF Meetings Schedule

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## **Sunday, May 31, 2009**

ACerS Board of Directors Meeting*	8 AM – 2:30 PM	Plaza B
GOMD Executive Committee Meeting*	4 PM – 6 PM	Brighton

## **Monday, June 1, 2009**

PacRim Societies' Meeting*	4:30 PM – 6 PM	Seymour
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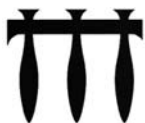
## **Tuesday, June 2, 2009**

ACerS GOMD General Business Meeting	6 PM – 6:30 PM	Grouse
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## **Thursday, June 4, 2009**

International Ceramic Federation Council Meeting*	2 PM – 4 PM	Regency E
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*\*Please note that many of these meetings are closed to the general public and are by invitation only.*



## ICG Meeting Schedule

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## **Sunday, May 31, 2009**

ICG Technical Committee Meetings**	8 AM – 5 PM	
ICG TC04 Meeting	2 PM – 4 PM	Cavendish
ICG TC05 Meeting	2 PM – 5 PM	Tennyson
ICG TC23 Meeting	2 PM – 5 PM	Lord Byron
ICG TC20 Meeting	3 PM – 5 PM	Dover

## **Monday, June 1, 2009**

ICG Technical Committee Meetings**	8 AM – 5 PM	
ICG TC07 Meeting	8 AM – 12 PM	Brighton
ICG TC18 Meeting	9 AM – 12 PM	Tennyson
ICG Plenary Session and Opening Ceremony	1:20 PM – 2:30 PM	Regency D
ICG Coordinating Technical Committee Meeting	5 PM – 7 PM	Brighton

## **Tuesday, June 2, 2009**

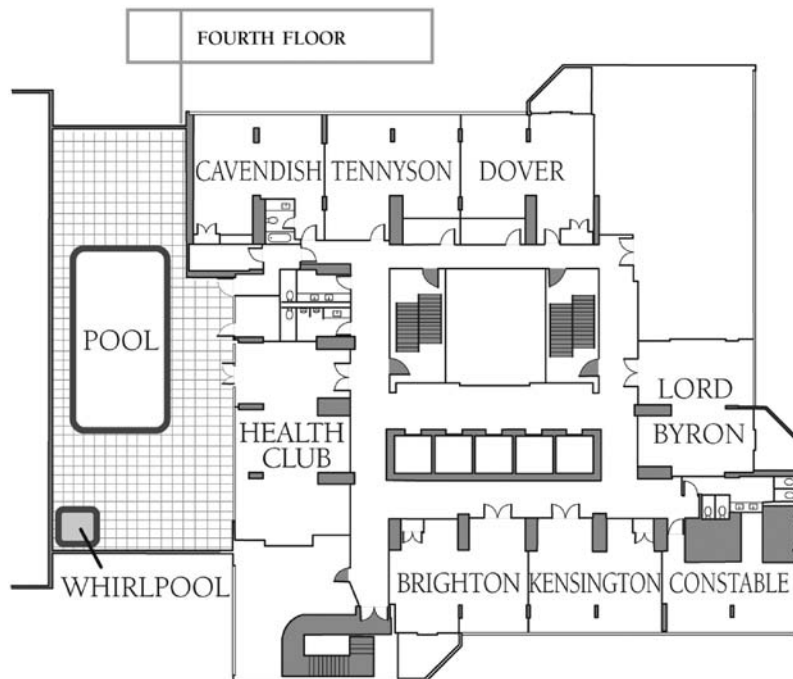
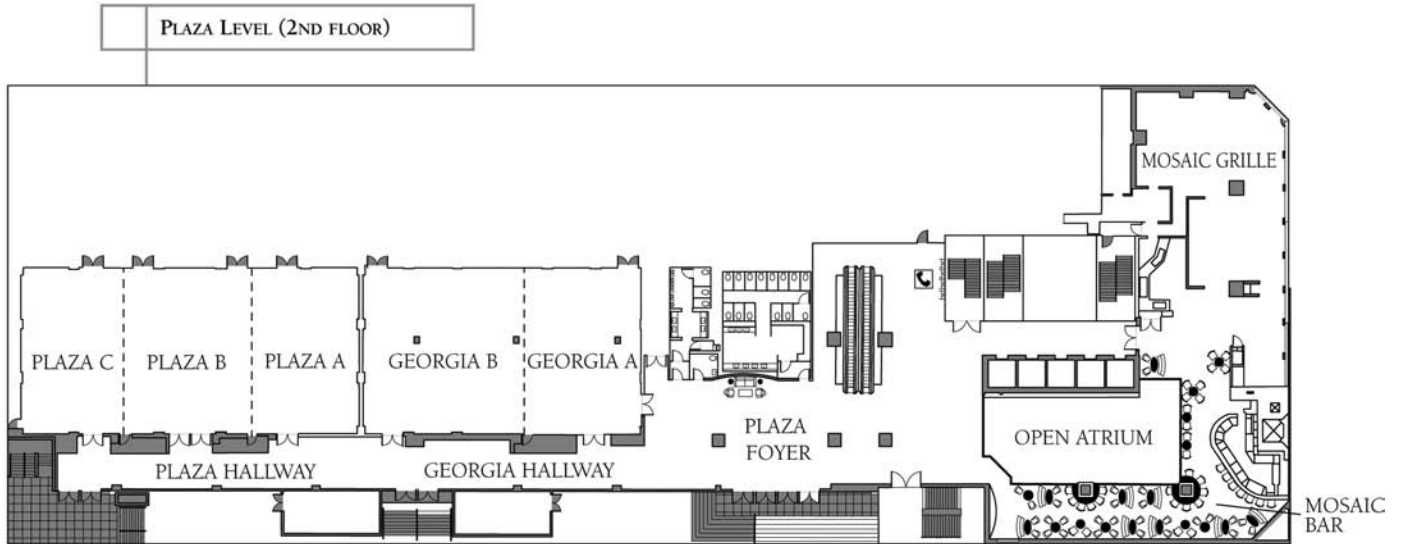
ICG Coordinating Technical Committee Meeting	9 AM – 12 PM	Plaza B
ICG Steering Committee Meeting	1 PM – 4 PM	Plaza B
ICG Council Meeting	4 PM – 6 PM	Plaza B

## **Friday, June 5, 2009**

ICG TC06 Meeting - In Conjunction with the GMIC Glass Strength Wrap Up Meeting	8 AM – 12 PM	Seymour
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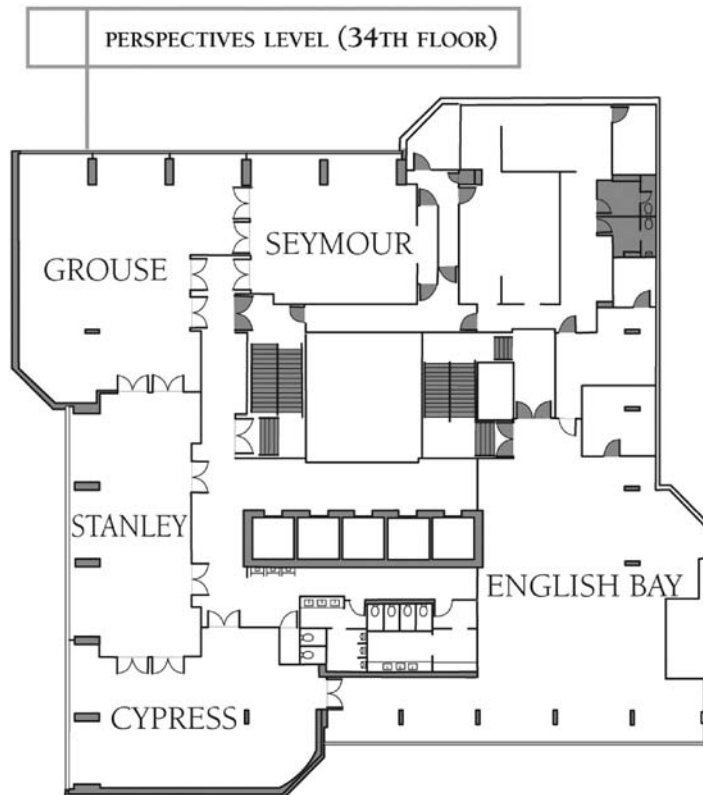
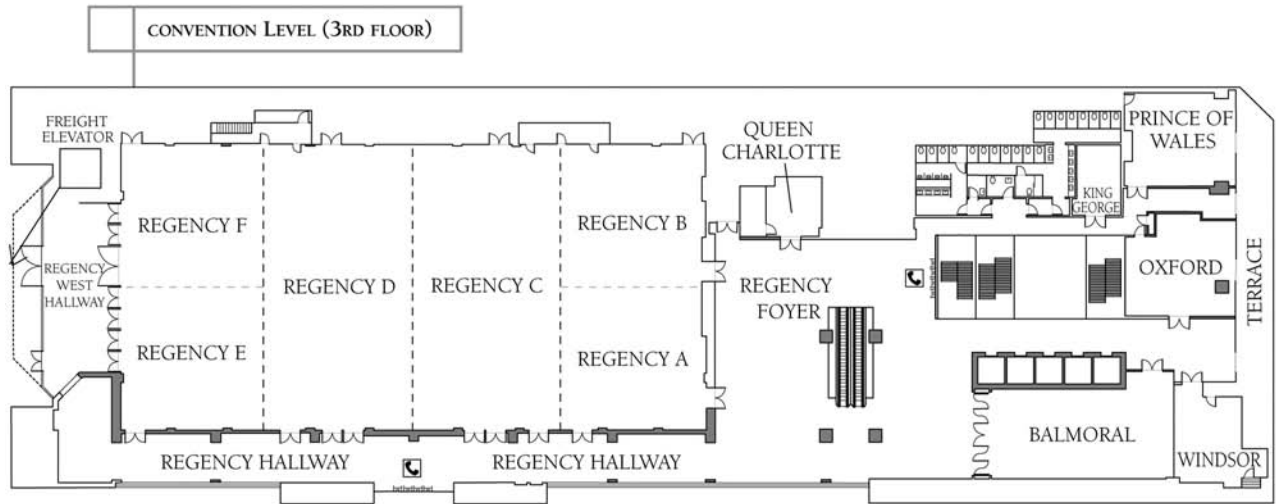
*\*\*Check at the PACRIM Registration area for a complete listing of ICG Technical Committee meetings.*

# Hyatt Regency Meeting Room Space





# Hyatt Regency Meeting Room Space



# Plenary Speakers

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**9:40 AM**

**Joseph A. Miller Jr.**

Corning Inc.  
United States

**Presentation Abstract:**

***2009 Global R&D and Innovation in Glass and Ceramics at Corning***

Corning's approach to growth through innovation is focused on the invention and manufacture of high technology keystone components from inorganic materials. Several new product programs in the innovation portfolio will be reviewed. The critical success factors of Corning's global innovation strategy will be discussed as well as our methodology for tracking megatrends and identifying new opportunities in glass and ceramics.

Corning's approach to and perspective on R&D in Asia for glass and ceramics materials will be highlighted.

**Joseph A. Miller Jr.**

Joseph A. Miller Jr. joined Corning Inc. in July 2001 as senior vice president and chief technology officer. He was named executive vice president in March 2002. Prior to joining Corning, Miller was with E.I. DuPont de Nemours Inc., where he served as chief technology officer and senior vice president for Research & Development since 1994. He began his career with DuPont in 1966 as a research chemist in Polymer Science. He also held a variety of positions in R&D, manufacturing, business and marketing. Miller received a bachelor's degree from Virginia Military Institute and a doctorate in chemistry from Pennsylvania State University. He is a member of numerous science and technology organizations, including the National Academy of Engineering, American Association for the Advancement of Science (Fellow) and the Industrial Research Institute. He is on the board of directors of Greatbatch Inc. and Dow Corning.



**10:40 AM**

**Teruo Kishi**

National Institute for Materials Science  
Japan

**Presentation Abstract:**

***Research on Ceramics: State of the Art and Future Challenges in Japan***

Ceramic materials research has continued to expand since the mid-19th century. Through the research on semiconductors from the mid-20th century, ceramics today are used not only as structural materials but also as functional materials. In addition, there is no doubt that nanotechnology contributes to the progress of research on ceramic materials. Since United States launched its National Nanotechnology Initiative in 2000, nanotechnology has been promoted world wide, and has affected all materials research, including ceramics. As a result, people have discovered that even ceramics are capable of superconductivity. In Japan, although the net research budget for nanotechnology and materials science decreased in 2008, research in the field is still one of the four strategic fields of the third Basic Program for Science and Technology operating from 2006 to 2011.

Japan has promoted the materials research focusing on (1) development of human resources and their education, (2) promoting the Center of Excellence and networking and

(3) commercialization of research products. These promotions effectively create seeds of innovations in the area of ceramic materials, such as the discovery of the third group of superconductive materials and achievements in the area of oxide electronics. Japanese ceramics industries have played an important role in the development of ceramics technology. Multilayer capacitors, called MLCCs, are such an example. Although the MLCC idea originated in the U.S., the Japanese industry led the effort to put it into practical use. Indeed, Japanese makers retain more than 50 percent of the MLCC market.

However, Japanese business executives today are not optimistic about their future. To maintain a leading role, they are demanding new materials, novel processes and new concepts from our academy. Supporting their needs is one of missions of the National Institute.

**Teruo Kishi**

Teruo Kishi is currently president of the National Institute for Materials Science and of The Japan Federation of Engineering Societies. He is professor emeritus at the University of Tokyo, and director general of the Nanotechnology Researchers Network Center of Japan. Kishi's expertise includes material science, fracture and non-destructive testing, metals and ceramics composites. In 2007, he received the Barkhausen Award, which is given for outstanding research achievements in interdisciplinary work involving physics, materials science, and electrical engineering. Kishi received his doctor of engineering from the University of Tokyo in 1969.

# Plenary Speakers



**11:20 AM**  
**Larry L. Hench**  
University of Florida  
United States

## Presentation Abstract:

### *Discovery and Clinical Uses of Bioglass: A 40 Year Retrospective*

Bioactive glasses were discovered in 1969 and provided, for the first time, an alternative to first generation bioinert materials: a second generation, interfacial bonding of an implant with host tissues. Tissue regeneration using the gene-activating properties of 45S5 Bioglass provide a third generation of biomaterials that are designed to turn-on the body's own repair processes. Forty years of studies of mechanisms of bone-bioactive glass bonding and recent discoveries of gene-activation by the ionic dissolution products of bioglass are described, including ionic stimulation of stem cells. Clinical uses in 35 countries cover a wide range of medical and dental

applications: middle ear prostheses, endosseous ridge implants, maxillo-facial reconstruction, spinal fusion, scoliosis repair, bone grafting, repair of fracture dis-unions and filling of cavitory defects. Implications for future use in regenerative medicine will be summarized.

## Larry L. Hench

Larry L. Hench is currently a graduate research professor in the Department of Materials Science and Engineering at the University of Florida. He is also professor and director of special projects at the University of Central Florida, visiting professor of materials science and engineering at the University of Arizona, and emeritus professor of ceramic materials in the Department of Materials at Imperial College London. For 10 years he served as codirector of the Imperial College Tissue Engineering and Regenerative Medicine Centre. He assumed the chair of ceramic materials at Imperial College in 1995 following 32 years at the University of Florida where he served as director of the Bioglass Research Centre and codirector of the Advanced Materials Research Center. He re-joined the faculty of the MSE department at UF in 2009. Larry completed his Bachelor of Ceramic Engineering degree at The Ohio State University in 1961 and his Ph.D. in 1964.


## International Ceramic Federation



### The American Ceramic Society welcomes the International Ceramic Federation

The ICF was established in 1990 as a nongovernmental, nonprofit federation of societies representing ceramists, ceramic engineers and ceramic scientists of the member countries. The purpose of the ICF is to promote and stimulate understanding and cooperation among persons and societies from different countries.

ICF will hold a Council Meeting during PACRIM8 on Thursday, 4 June.



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Robo, the UBE dog created by  
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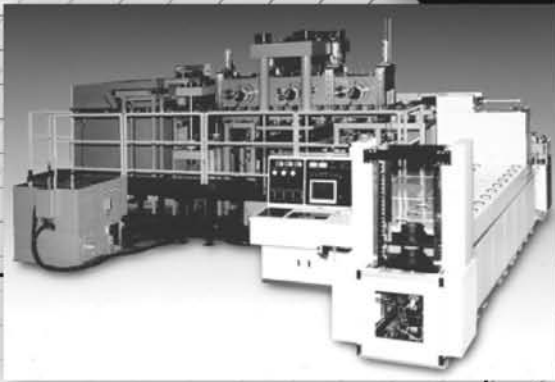
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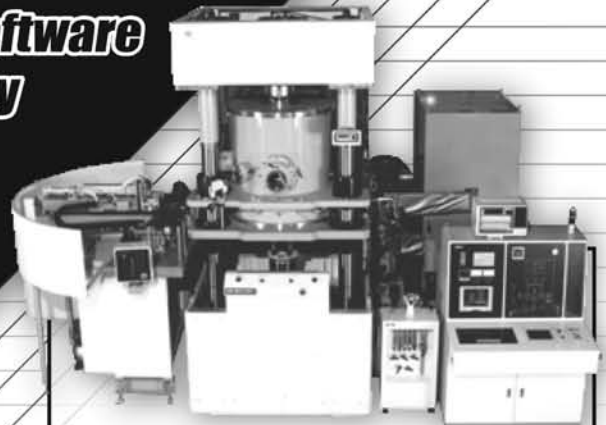
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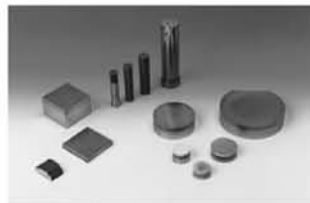
## Other Mass-Production Models

■ Rotary Type ■ Shuttle Type ■ Multi-head Type etc...

## Various Application of SPS Process



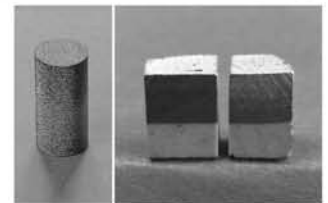
Large size Al-Si alloy  
(350mm diameter)



Functionally graded materials



Si<sub>3</sub>N<sub>4</sub>/Al<sub>2</sub>O<sub>3</sub> wear-resistant parts



[Left] Porus titanium materials  
[Right] Metal-polymer FGMs

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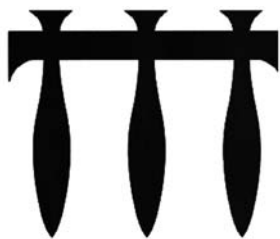
### ■ Contact in the U.S.

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# ICG and GOMD Glass Plenary Session

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## ICG Plenary Session and Opening Ceremony



1:20 – 1:35 pm	Introduction and welcome address by ICG President, Dr. Hervé Arribart
1:35 – 1:50 pm	Presentation of the Turner Award 2009 to Prof. Wolfram Hoeland, by the Chairman of the Coordinating Technical Committee, Dr. Klaus Bange
1:50 – 2:00 pm	Presentation of the Professor Vittorio Gottardi Memorial Prize 2009 to Dr. Ralf Keding, by the Executive Secretary, Dr. Peter Simurka
2:00 – 2:30 pm	Lecture by the winner of the Professor Vittorio Gottardi Memorial Prize 2009, Dr. Ralf Keding

The International Conference on Glass **Turner Award** was inaugurated in 2002 in memory of Professor W.E.S. Turner, the first ICG President and founder of the Department of Glass Technology at Sheffield University. The award recognizes those who have made a noteworthy contribution to the ICG Technical Committees.

**Award Winner: Professor Wolfram Hoeland**

The International Conference on Glass **Professor Vittorio Gottardi Memorial Prize** was initiated in 1987 in memory of Professor Vittorio Gottardi. The award is presented annually to young people with outstanding achievements in the field of glass in research and development, teaching, writing, management or commerce.

**Award Winner: Dr. Ralf Keding**

**Lecture Title: Creation of the First Nuclei in Undercooled Melts**

## GOMD Plenary Session

2:50 - 3:00 pm	GOMD Opening Remarks
3:00 - 3:45 pm	George W. Morey Award Lecture, by Dr. Prabhat Gupta
3:45 - 4:30 pm	Stookey Lecture of Discovery, by Dr. Tadashi Kokubo
4:30 - 5:15 pm	Norbert J. Kreidl Award for Young Scholars Lecture by Inseok Seo

The American Ceramic Society's Glass and Optical Materials Division **George W. Morey Award** recognizes achievements in the field of glass science and technology. The award is given for an outstanding publication on glass, either scientific or technological, published during the previous year.

**Award Winner: Prabhat K. Gupta, University Professor, Department of Materials Science and Engineering  
The Ohio State University, Columbus, Ohio**

**Lecture Title: Reflections on the Thermodynamics of Glass Transition  
Sponsored by PPG Industries Inc.**

# ICG and GOMD Glass Plenary Session

The American Ceramic Society's Glass and Optical Materials Division **Stookey Lecture of Discovery**, named in honor of materials pioneer Dr. S. Donald Stookey, recognizes an individual's lifetime of innovative exploratory work or noteworthy contributions of outstanding research on new materials, phenomena, or processes involving glass, that have commercial significance or the potential for commercial impact.

**Award Winner: Tadashi Kokubo, University Professor, Department of Biomedical Sciences  
Chubu University, Kasugai City, Japan**  
**Lecture Title: Development of Novel Bioactive Materials based on Nucleation and Crystal Growth**  
**Sponsored by Corning Incorporated and Coe College**

The American Ceramic Society's Glass and Optical Materials Division **Norbert J. Kreidl Award for Young Scholars**, recognizes excellence in research by students in the fields of glass and optical materials. Dr. Kreidl's lifelong mission was to enhance the education, achievement and advancement of young people.

**Award Winner: Inseok Seo, Iowa State University, Ames, Iowa**  
**Lecture Title: Structure, Composition and High Ionic Conductivity of  $x\text{Li}_2\text{S}+\text{GeS}_2$  ( $x=1, 2$  and  $3$ ) Thin Film Electrolytes Grown by RF Sputtering for Solid State Li-ion Batteries**

## Glass & Optical Materials Division (GOMD) Officers

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Hong Li

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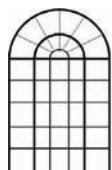
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## Special Thanks to The Following GOMD Award Sponsors:



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# Clear As Glass Tutorials

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## Tutorials on Thermodynamics & Chemical Technology in Glass Melting

Wednesday, June 3rd

8:30 AM – 12:00 PM

Regency E

The tutorial addresses Master level or 1<sup>st</sup> year Ph.D. students with a focus on glass science and technology. Students may have acquired a background in materials science of glass, and may have gained an overview over glass fabrication processes. But often, they feel a lack of instruction in the theoretical background and the general concepts of industrial high-T processes. The tutorial aims at closing this gap. It is true, the tutorial cannot replace an entire course. But it will convey the meaning of the important buzz words, and help to gain some practice in applying the related concepts. The following four lectures – comprising calculation exercises – are offered:

1. Thermochemistry of Mineral Raw Materials, Glass Melts, and Solid Glass
2. Thermochemistry of Combustion
3. The Glass Furnace – a Thermal Reactor
4. The Glass Furnace – a Chemical Reactor

## International Commission on Glass



The American Ceramic Society  
welcomes the 2009 Annual Meeting  
of the International Commission on  
Glass (ICG)

ICG is a non-profit international GLASS SOCIETY consisting of 31 national organizations in glass science and technology. The aim of ICG is to promote cooperation between glass experts. ICG organizes Technical Committee work, including laboratory round robins, publication of scientific and technical papers.

## Conference Dinner

Thursday, June 4th – Regency C/D/E/F

7 PM – 9:30 PM

All meeting registrants and registered companions are invited to enjoy dinner and entertainment provided by the Le-La-La Dancers. Discover the ancient legends, songs, and dances of the First Nations. Through vibrant regalia, exquisite masks, and heartbeat drum rhythms the history and culture of the Kwakwaka'wakw peoples will be highlighted.



# Technical Sessions By Symposium

Session Title	Day	Time	Location
Plenary Session	1-Jun-09	9:00 AM–12:00 PM	Regency C, D, E, F
ICG and GOMD Glass Plenary Session	1-Jun-09	1:20 PM–5:15 PM	Regency D
<b><i>Symposium 01: Design, Modeling, and Simulation of Ceramic Interfaces</i></b>			
The Role of Interfaces and Grain Boundaries in Mechanical Behavior	2-Jun-09	8:30 AM–11:00 AM	English Bay
The Role of Grain Boundaries in Transparency	2-Jun-09	11:00 AM–11:50 AM	English Bay
Segregation at Grain Boundaries	2-Jun-09	1:30 PM–3:20 PM	English Bay
The Role of Grain Boundaries in Sintering	2-Jun-09	3:20 PM–4:40 PM	English Bay
The Role of Grain Boundaries in Radiation Damage and Nuclear Materials	3-Jun-09	8:30 AM–10:00 AM	English Bay
The Role of Grain Boundaries in Dielectric/Electronic Behavior	3-Jun-09	10:00 AM–12:10 PM	English Bay
<b><i>Symposium 02: Computational Approaches in Materials Research and Design</i></b>			
Ab-initio Calculations	4-Jun-09	8:30 AM–10:00 AM	English Bay
Modelling of Defects and Related Properties	4-Jun-09	10:00 AM–11:00 AM	English Bay
Design of New Ceramics	4-Jun-09	11:00 AM–12:00 PM	English Bay
Electronic Structure and Phase Stability	4-Jun-09	1:20 PM–3:20 PM	English Bay
Improvement of the Performance of Ceramics and Composites	4-Jun-09	3:20 PM–4:40 PM	English Bay
Optimization of Properties and Process	4-Jun-09	4:40 PM–6:00 PM	English Bay
<b><i>Symposium 03: Novel, Green, and Strategic Processing and Manufacturing Technologies</i></b>			
Microwave and Green Manufacturing	4-Jun-09	8:30 AM–12:00 PM	Plaza B
Coating and Aqueous Synthesis	4-Jun-09	1:20 PM–5:10 PM	Plaza B
Novel Processing	5-Jun-09	8:30 AM–11:50 AM	Plaza B
<b><i>Symposium 04: Polymer Derived Ceramics and Composites</i></b>			
Porous Components I	1-Jun-09	1:20 PM–3:20 PM	Plaza A
Porous Components II	1-Jun-09	3:20 PM–5:50 PM	Plaza A
Polymer-Derived-Ceramic Fibers I	2-Jun-09	8:30 AM–10:00 AM	Plaza A
Polymer-Derived-Ceramic Fibers II	2-Jun-09	10:00 AM–12:00 PM	Plaza A
Polymer-Derived-Ceramic Fibers III	2-Jun-09	1:20 PM–3:10 PM	Plaza A
Bulk Components	2-Jun-09	3:20 PM–5:50 PM	Plaza A
Advanced Applications and Properties I	3-Jun-09	8:30 AM–10:00 AM	Plaza A
Structural Characterization	3-Jun-09	10:00 AM–12:00 PM	Plaza A
Advanced Applications and Properties II	4-Jun-09	8:30 AM–10:00 AM	Plaza A
Nano-structures and Nano-composites	4-Jun-09	10:00 AM–11:50 AM	Plaza A
Coatings	4-Jun-09	1:20 PM–3:10 PM	Plaza A

# Technical Sessions By Symposium

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## ***Symposium 05: Advanced Powder Processing and Manufacturing Technologies***

Powder Synthesis I	1-Jun-09	1:20 PM – 3:20 PM	Plaza C
Powder Synthesis II	1-Jun-09	3:20 PM – 4:50 PM	Plaza C
Powder Synthesis III	1-Jun-09	4:50 PM – 6:00 PM	Plaza C
Powder Synthesis IV	2-Jun-09	8:30 AM – 10:00 AM	Plaza C
Powder Synthesis V and Porous Ceramics I	2-Jun-09	10:00 AM – 11:50 AM	Plaza C
Colloidal Processing I and Forming and Manufacturing I	2-Jun-09	1:20 PM – 4:30 PM	Plaza C
Novel Forming/Sintering Technology	2-Jun-09	4:30 PM – 6:00 PM	Plaza C
Colloidal Processing II, Binder Technology and Manufacturing II	3-Jun-09	8:30 AM – 10:50 AM	Plaza C
Ceramic/Polymer Composite	3-Jun-09	10:50 AM – 11:50 AM	Plaza C

## ***Symposium 06: Synthesis and Processing of Materials by the Spark Plasma Method***

Fundamental Investigations on the SPS Process I	4-Jun-09	8:30 AM–11:40 AM	Prince of Wales
Fundamental Investigations on the SPS Process II	4-Jun-09	1:20 PM–3:20 PM	Prince of Wales
Nanostructured Materials/Properties of SPS Densified Materials	4-Jun-09	3:20 PM–5:40 PM	Prince of Wales
Properties of SPS Densified Materials	5-Jun-09	8:30 AM–11:40 AM	Prince of Wales

## ***Symposium 07: Nanostructured Materials and Systems***

Synthesis, Functionalization and Processing of Nanostructures	1-Jun-09	1:20 PM–6:10 PM	Balmoral
Hybrid Nanomaterials and Nano-reinforced Composites	2-Jun-09	8:30 AM–12:00 PM	Balmoral
Controlled Assembly / Self-Organization of Nanostructures	2-Jun-09	1:20 PM–3:20 PM	Balmoral
Nanowires: Growth and Device Applications	2-Jun-09	3:20 PM–6:00 PM	Balmoral
Nano-Bio Interaction	3-Jun-09	8:30 AM–10:00 AM	Balmoral
Materials for Nano-Sensors	3-Jun-09	10:00 AM–12:10 PM	Balmoral
Nanomaterials: New Compositions and Architectures	4-Jun-09	8:30 AM–11:50 AM	Balmoral

## ***Symposium 08: Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Applications***

CMCs: Design, Processing & Characterizations	1-Jun-09	1:20 PM–5:40 PM	Oxford
Processing-Microstructure-Mechanical Properties	2-Jun-09	8:30 AM–12:00 PM	Oxford
CMCs: Applications	2-Jun-09	1:30 PM–5:30 PM	Oxford
Reliability and Lifetime Prediction Methodologies	3-Jun-09	8:30 AM–10:40 AM	Oxford
Joining	3-Jun-09	10:40 AM–12:00 PM	Oxford

# Technical Sessions By Symposium

## **Symposium 09: Advanced Ceramic Coatings: Processing, Properties, and Applications**

Thermal and Environmental Barrier Coatings	1-Jun-09	1:20 PM–6:00 PM	Prince of Wales
Diamond-like Carbon Coatings	2-Jun-09	8:30 AM–12:00 PM	Prince of Wales
Tribological Wear- and Erosion-Resistant Coatings	2-Jun-09	1:20 PM–3:20 PM	Prince of Wales
Interface, Multifunctional and Corrosion Protective Coatings	2-Jun-09	3:20 PM–6:40 PM	Prince of Wales
Dielectric and Optical Coatings	3-Jun-09	8:30 AM–10:00 AM	Prince of Wales
Multifunctional and Bio-Coatings	3-Jun-09	10:00 AM–12:00 PM	Prince of Wales

## **Symposium 10: Geopolymers - Low Energy and Environmentally Friendly Ceramics**

Geopolymer I	4-Jun-09	1:20 PM–6:00 PM	Balmoral
Geopolymer II	5-Jun-09	8:30 AM–12:00 PM	Balmoral

## **Symposium 11: Advances in Electroceramics**

Processing of Electroceramic Films	2-Jun-09	8:30 AM–12:00 PM	Regency A
Processing of Piezoelectric Ceramics/ Piezoelectric Transducers	2-Jun-09	1:20 PM–6:00 PM	Regency A
Lead-free Piezoelectrics / Fundamental	3-Jun-09	8:30 AM–12:00 PM	Regency A
Passive Components and Integration Technology / Single Crystal	4-Jun-09	8:30 AM–12:00 PM	Regency A
Optical Properties of Ceramics & Applications / Dielectric Materials & Applications	4-Jun-09	1:20 PM–6:10 PM	Regency A
Multi-ferroic Materials & Applications / Lead-based Piezoelectrics	5-Jun-09	8:30 AM–12:00 PM	Regency A
Tunable Materials & Devices	5-Jun-09	8:30 AM–11:40 AM	Regency C

## **Symposium 12: Microwave Materials and Their Applications**

Structure and Properties for Microwave Materials	1-Jun-09	1:20 PM–5:40 PM	Regency B
Low-temperature Co-fired Ceramics(LTCC)	2-Jun-09	8:30 AM–11:40 AM	Regency B
New Materials and Technology for Microwave Materials and Their Applications	2-Jun-09	1:20 PM–5:40 PM	Regency B
Tunable Materials, Thin Films and Devices (I)	3-Jun-09	8:30 AM–11:40 AM	Regency B

## **Symposium 13: Advanced Thermal Management Materials and Technologies**

Advanced Thermal Management Materials and Technologies	1-Jun-09	1:20 PM–4:30 PM	Plaza B
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## **Symposium 14: Solid Oxide Fuel Cells and Hydrogen Technology**

Electrode Materials and Microstructural Engineering; Ceramic and Metallic Interconnects; Degradation Mechanisms	2-Jun-09	1:20 PM–5:20 PM	Georgia B
Electrochemical Performance, Modeling, Cell and Stack Designs	3-Jun-09	8:30 AM–12:30 PM	Georgia B

# Technical Sessions By Symposium

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Oxygen Ion, Proton and Mixed Conductors; Mullite-type Bi <sub>2</sub> M <sub>4</sub> O <sub>9</sub> Phases I	4-Jun-09	8:30 AM–12:00 PM	Georgia B
Oxygen Ion, Proton and Mixed Conductors; Conduction Mechanisms, Materials Limitations II	4-Jun-09	1:20 PM–4:40 PM	Georgia B
Materials and Technologies for Hydrogen Production, Storage, Transportation and Safety	4-Jun-09	4:40 PM–5:40 PM	Georgia B
Sealing Materials, Compatibility and Designs	5-Jun-09	8:30 AM–11:50 AM	Georgia B

## ***Symposium 15: Direct Thermal to Electrical Energy Conversion Materials and Applications***

Composite and Nanocomposite TE Materials	4-Jun-09	8:30 AM–10:40 AM	Regency B
Bulk TE Materials: Half Heusler Alloys	4-Jun-09	10:40 AM–12:00 PM	Regency B
New TE Materials	4-Jun-09	1:20 PM–3:30 PM	Regency B
TE Materials & Applications	4-Jun-09	3:30 PM–5:50 PM	Regency B
Oxide Thermoelectrics	5-Jun-09	8:30 AM–10:20 AM	Regency B

## ***Symposium 16: Ceramics for Electric Energy Generation, Storage, and Distribution***

Ceramics for Power Generation	4-Jun-09	8:30 AM–10:00 AM	Oxford
Materials for Li-Ion Batteries	4-Jun-09	10:00 AM–12:00 PM	Oxford
Materials for Capacitance Energy Storage	4-Jun-09	1:20 PM–3:20 PM	Oxford
Materials for Solar-Thermal Applications	4-Jun-09	3:20 PM–5:20 PM	Oxford
Technologies and Industrial Applications of Advanced Ceramics and Composites	5-Jun-09	8:30 AM–11:20 AM	Oxford

## ***Symposium 17: Photocatalytic Materials: Reaction, Processing, and Applications***

Visible Light Active Photocatalyst	1-Jun-09	1:20 PM–3:20 PM	Regency F
Characterization of Photocatalytic Materials	1-Jun-09	3:20 PM–5:40 PM	Regency F
Applications of Photocatalytic Reaction and Modified TiO <sub>2</sub> Photocatalyst	2-Jun-09	8:30 AM–10:40 AM	Regency F
Thin Film Photocatalyst	2-Jun-09	10:40 AM–12:20 PM	Regency F

## ***Symposium 18: Ceramics Enabling Environmental Protection: Clean Air and Water***

Novel Materials and Processes Enabling New Products for Environmental Protection I	1-Jun-09	1:20 PM–5:10 PM	Georgia B
Novel Materials and Processes Enabling New Products for Environmental Protection II	2-Jun-09	8:30 AM–11:20 AM	Georgia B

## ***Symposium 19: Glasses and Ceramics for Nuclear and Hazardous Waste Treatment***

Process Modeling and Waste Form Characterization and Analysis	4-Jun-09	8:40 AM–11:00 AM	Plaza C
Glass, Glass-Ceramic and Cementitious Waste Forms	4-Jun-09	1:30 PM–4:40 PM	Plaza C

# Technical Sessions By Symposium

## ***Symposium 20: Advances in Biomineralized Ceramics, Bioceramics, and Bioinspired Designs***

Surfaces, Biocompatibility and Bioactive Ceramics	4-Jun-09	8:30 AM–12:20 PM	Georgia A
Mineralization, Self-Assembly and Bioinspired Ceramics	4-Jun-09	1:20 PM–4:10 PM	Georgia A
Mechanical Properties and Biomechanics	4-Jun-09	4:10 PM–5:50 PM	Georgia A
New Materials and Composites	5-Jun-09	8:30 AM–10:20 AM	Georgia A
Orthopedic Implants, Bone Cements, Bone Scaffolding	5-Jun-09	10:20 AM–11:40 AM	Georgia A
Porous Ceramics, Resorbable Bioceramics and Degradation	5-Jun-09	11:40 AM–12:40 PM	Georgia A

## ***Symposium 21: Nano-Biotechnology and Ceramics in Biomedical Applications***

Advanced Processing of Bioceramics	1-Jun-09	1:20 PM–5:40 PM	Georgia A
Characterization of Bioceramics	2-Jun-09	8:30 AM–11:40 AM	Georgia A
Next Generation Bioceramics	2-Jun-09	1:20 PM–5:30 PM	Georgia A
Nanostructured Bioceramics	3-Jun-09	8:30 AM–11:30 AM	Georgia A

## ***Symposium 22: Environmental, Health, and Safety of Nanomaterials: Assessment and Measurement Needs***

EHS Issues for Nanomaterials	3-Jun-09	8:30 AM–12:30 PM	Plaza B
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## ***Symposium 23: Glass Science***

Structural Basis of Glass Properties I	2-Jun-09	8:40 AM–12:00 PM	Grouse
Structural Basis of Glass Properties II	2-Jun-09	1:20 PM–6:00 PM	Grouse
Structural Basis of Glass Properties III	3-Jun-09	8:40 AM–12:00 PM	Grouse
Glass Surface and Nanostructured Glasses	4-Jun-09	8:30 AM–12:00 PM	Grouse
Non-oxide Glasses I	4-Jun-09	8:30 AM–12:00 PM	Cypress
Glass Formation and Relaxation Processes in Glasses	4-Jun-09	1:20 PM–6:10 PM	Grouse
Non-oxide Glasses II	4-Jun-09	1:20 PM–6:10 PM	Cypress
Glass in Canada	5-Jun-09	8:30 AM–12:00 PM	Cypress
Theory and Modeling	5-Jun-09	8:30 AM–12:10 PM	Grouse

## ***Symposium 24: Glass Technology, Energy and Environment***

Mechanical Properties of Glass and Glass-ceramic	2-Jun-09	8:30 AM–12:10 PM	Stanley
Glass Ceramics	2-Jun-09	1:30 PM–5:50 PM	Stanley
Environment and Sustainability Issues in Glass	3-Jun-09	8:30 AM–12:00 PM	Stanley
Part I: The Future of Glass Strength - An Industry Changing Symposium	4-Jun-09	8:30 AM–11:00 AM	Stanley
Part II: The Future of Glass Strength - An Industry Changing Symposium	4-Jun-09	1:20 PM–3:20 PM	Stanley
Strength, Durability and Electrical Properties of Glasses	5-Jun-09	8:30 AM–11:40 AM	Stanley

# Technical Sessions By Symposium

## ***Symposium 25: Glasses for Optoelectronic and Optical Applications***

Optically Active Glasses I	2-Jun-09	8:30 AM–12:00 PM	Seymour
Optically Active Glasses II	2-Jun-09	1:20 PM–6:00 PM	Seymour
Glasses for Optoelectronics	3-Jun-09	8:40 AM–12:00 PM	Seymour
Photosensitivity in Glasses	4-Jun-09	8:30 AM–11:50 AM	Seymour
Glass Fibers	4-Jun-09	1:20 PM–4:20 PM	Seymour
Optical Sensing	4-Jun-09	4:20 PM–6:10 PM	Seymour

## ***Symposium 26: Austen Angell Honorary Symposium***

Glasses and the 'Glass Transition'	2-Jun-09	8:30 AM–12:00 PM	Cypress
Glasses and Fragility	2-Jun-09	1:30 PM–6:00 PM	Cypress
Supercooled Liquids and Glassy Water	3-Jun-09	8:40 AM–12:10 PM	Cypress

## ***Symposium 27: International Fulrath Symposium on 'New Frontiers of Ceramics for Sustainable Society': In Honor of Prof. Noboru Ichinose and Prof. Richard C. Bradt***

International Fulrath Symposium I	1-Jun-09	1:20 PM–5:40 PM	Regency E
International Fulrath Symposium II	2-Jun-09	8:30 AM–12:00 PM	Regency E
International Fulrath Symposium III	2-Jun-09	1:20 PM–3:50 PM	Regency E



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**Engineering Ceramics Division**  
 The American Ceramic Society

# Symposia Organizers

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## 2009 PacRim 8 Chairman: Mrityunjay Singh, Ohio Aerospace Institute NASA Glenn Research Center

### Symposium 1 –

#### **Design, Modeling, and Simulation of Ceramic Interfaces**

**Organizers:** Martha Mecartney, University of California – Irvine, USA; Omer van der Biest, Katholieke Universiteit Leuven, Belgium; Catherine M. Bishop, University of Canterbury, New Zealand; John Drennan, University of Queensland, Brisbane, Australia; Yuichi Ikuhara, University of Tokyo, Japan; Suk-Joong L. Kang, KAIST, Korea; Yung-Jen Lin, Tatung University, Taiwan; Xiuliang Ma, Shenyang, Nat. Lab. for Mater. Sci., Chinese Academy of Sciences, China; Jose S. Moya, Instituto de Ciencias de Materiales de Madrid, Spain; Izabela Szlufarska, University of Wisconsin-Madison, USA; Suleyman Tekeli, Gazi University, Turkey; Yanchun Zhou, Institute of Metal Research, Chinese Academy of Sciences, China

### Symposium 2 –

#### **Computational Approaches in Materials Research and Design**

**Organizers:** Yanchun Zhou, Institute of Metal Research, Chinese Academy of Sciences, China; Isao Tanaka, Kyoto University, Japan; Wai-Yim Ching, University of Missouri-Kansas City, USA; Denis Music, Aachen University, Germany

### Symposium 3 –

#### **Novel, Green, and Strategic Processing and Manufacturing Technologies**

**Organizers:** Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Juergen G. Heinrich, Clausthal University of Technology, Germany; Dongliang Jiang, Shanghai Institute of Ceramics, Shanghai, China; Takashi Goto, Tohoku University, Japan; Richard D. Sisson, Jr., Worcester Polytechnic Institute, MA; Junichi Tatami, Yokohama National University, Japan

### Symposium 4 –

#### **Polymer Derived Ceramics and Composites**

**Organizers:** Paolo Colombo, University of Padova, Italy; Gian Domenico Sorarù, University of Trento, Italy; Ralf Riedel, Technical University Darmstadt, Germany; Rishi Raj, University of Colorado, USA; Raj Bordia, University of Washington, USA; Yuji Iwamoto, Nagoya Institute of Technology, Japan; Dong-Pyo Kim, Chungnam National University, Korea; Ya-Li Li, Tian Jin University, China

### Symposium 5 –

#### **Advanced Powder Processing and Manufacturing Technologies**

**Organizers:** George V. Franks, University of Melbourne, Australia; Jianfeng Yang, Xi'an Jiaotong University, China; Guo-Jun Zhang, Shanghai Institute of Ceramics, China; Yoshio Sakka, National Institute for Materials Science, Japan; Junichi Tatami, Yokohama National University, Japan; Satoshi Tanaka, Nagaoka University of Technology, Japan; Hae Jin Hwang, Inha University, Korea; Lennart Bergstrom, Stockholm University, Sweden; Christopher B Diantonio, Sandia National Laboratories, USA; Yuji Hotta, National Institute of Advanced Industrial Science and Technology (AIST), Japan

### Symposium 6 –

#### **Synthesis and Processing of Materials by the Spark Plasma Method**

**Organizers:** Zuhair A. Munir, University of California, Davis, CA; Manshi Ohyanagi, Ryukoku University, Shiga, Japan; Enrique J. Lavernia, University of California, Davis, CA; Masao Tokita, SPS SYNTEX INC, Kanagawa, Japan; Javier E. Garay, University of California, Riverside, CA

# Symposia Organizers

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## **Symposium 7 –**

### **Nanostructured Materials and Systems**

**Organizers:** S. Mathur, University of Cologne, Germany; L. Vayssieres, National Institute for Materials Science, Tsukuba, Japan; J.P. Morante, University of Barcelona, Spain; S. Islam, University of California Davis, USA; C. Fan, SINAP, Chinese Academy of Science, Shanghai, China; X. Sun, Nanyang Technical University, Singapore; L.M. Manocha, Sardar Patel University, India

## **Symposium 8 –**

### **Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Applications**

**Organizers:** Dileep Singh, Argonne National Laboratory, Argonne, IL; S. Jill Glass, Sandia National Laboratories, Albuquerque, NM; Sylvia M. Johnson, NASA Ames Research Center, Moffett Field, CA; Litong Zhang, Northwestern Polytechnical University, Xian, China; Ron Kerans, Air Force Research Laboratory, WPAFB, OH; Walter Krenkel, University of Bayreuth, Germany; Laifei Cheng, Northwestern Polytechnical University, Xian, China; R.T. Bhatt, US Army Propulsion Directorate, NASA Glenn Research Center, Cleveland, OH; Raj Tandon, Sandia National Laboratories, Albuquerque, NM ; V.K.Srivastava, Banaras Hindu University, Varanasi, India

## **Symposium 9 –**

### **Advanced Ceramic Cotaings: Processing, Properties, and Applications**

**Organizers:** Dongming Zhu NASA Glenn Research Center, USA; Yutaka Kagawa, University of Tokyo, Japan Nitin P. Padture, The Ohio State University, USA; Yoshinori Koga, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Peter Mechnich, German Aerospace Center (DLR), Germany; Kevin Plucknett, Dalhousie University, Canada; Kwang Ho Kim, Pusan National University, Korea; Shaoming Dong, Shanghai Institute of Ceramics, CAS, P. R. China; Jow-Lay Huang, National Cheng Kung University, Taiwan, ROC; Qi Yang, National Research Council (NRC), Canada

## **Symposium 10 -**

### **Geopolymers – Low Energy and Environmentally Friendly Ceramics**

**Organizers:** Dan Perera, ANSTO, Sydney, Australia; Waltraud M. Kriven, University of Illinois at Urbana-Champaign, Urbana, USA; Ken MacKenzie, Victoria University of Wellington, New Zealand; Kyoshi Okada, Tokyo Institute of Technology, Tokyo, Japan; Wanchai Yodsudjai, Kasetsart University, Jatujak, Bangkok 10900, Thailand; Tomas Hanzlicek, Academy of Science of the Czech Republic, Prague, Czech Republic

## **Symposium 11 -**

### **Advances in Electroceramics**

**Organizers:** Jun Akedo, National Institute of Advanced Industrial Science & Technology, Tsukuba, Japan; Takaaki Tsurumi, Tokyo Institute of Technology, Japan; Zuo-Guang Ye, Simon Fraser University, Canada; Hong Wang, Xi'an Jiaotong University, Xi'an, China; Yonh Soo Cho, Yonsei University, Seoul, Korea; Marija Kosec, Jožef Stefan Institute, Ljubljana, Slovenia

## **Symposium 12 -**

### **Microwave Materials and Their Applications**

**Organizers:** Robert Freer, University of Manchester, United Kingdom; Danilo Suvorov, Jozef Stefan Institute, Slovenia; Heli Jantunen, University of Oulu, Finland; Xiang Ming Chen, Zhejiang University, China; Eung Soo Kim, Kyonggi University, Republic of Korea; Mailadil T. Sebastian, National Institute for Interdisciplinary Science and Technology, India; Terrell A. Vanderah, National Institute of Standards and Technology, MD, USA; Michael T. Lanagan, Penn State University, PA, USA; Takeshi Shimada, Hitachi Metals, Ltd., Japan; Hitoshi Ohsato, Nagoya Institute of Technology, Japan



# Symposia Organizers

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## **Symposium 13 –**

### **Advanced Thermal Management Materials and Technologies**

**Organizers:** Andrew L. Gyekenyesi, Ohio Aerospace Institute (OAI), Cleveland, Ohio, USA; J. Douglas Kiser, NASA Glenn Research Center, Cleveland, OH, USA; Sylvia M. Johnson, NASA Ames Research Center, CA, USA; Rajiv Asthana, University of Wisconsin-Stout, WI, USA; Ajit K. Roy, Air Force Research Laboratory, WPAFB, OH, USA; Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology (AIST), Japan

## **Symposium 14 –**

### **Solid Oxide Fuel Cells and Hydrogen Technology**

**Organizers:** Fatih Dogan, Missouri University of Science and Technology, USA; Masanobu Awano, National Institute of Advanced Industrial Science and Technology, Japan; John Kilner, Imperial College London, United Kingdom; Mogens Mogensen, Risoe National Laboratory, Denmark; Jooho Moon, Yonsei University, Korea; Wen-Cheng Wei, National Taiwan University, Taiwan

## **Symposium 15 –**

### **Direct Thermal to Electrical Energy Conversion Materials and Applications**

**Organizers:** Terry M. Tritt, Clemson University, Clemson, SC, USA; Anke WEIDENKAFF, EMPA, CH-8600 Duebendorf-Zurich, Switzerland; Ryoji Funahashi, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Wenqing Zhang, Shanghai Institute of Ceramics, CAS, Shanghai, China; Holger Kleinke, University of Waterloo, Waterloo, Ontario, Canada

## **Symposium 16 –**

### **Ceramics for Electric Energy Generation, Storage, and Distribution**

**Organizers:** Hua-Tay Lin, Oak Ridge National Laboratory, USA; Franziska Scheffler, OvGU Magdeburg, Germany; Tohru Sekino, Tohoku University, Japan; Tom Troczynski, University of British Columbia, Canada; Yi-Bing Cheng, Monash University, Australia; Kuan-Zong Fung, National Cheng Kung University, Taiwan; Elzbieta Frackowiak, Poznan University of Technology, Poland; Peter H.L. Notten, Eindhoven University of Technology, The Netherlands; Michael Scheffler, Brandenburg Technical University of Cottbus, Germany

## **Symposium 17 –**

### **Photocatalytic Materials: Reaction, Processing, and Applications**

**Organizers:** Toshiya Watanabe, The University of Tokyo, Japan; Hisashi Ohsaki, National Institute of Advanced Industrial Science and Technology (AIST), Japan

## **Symposium 18 –**

### **Ceramics Enabling Environmental Protection: Clean Air and Water**

**Organizers:** Aleksander J. Pyzik, The Dow Chemical Company, USA; Hua-Tay Lin, Oak Ridge National Laboratory, USA; Hai-Doo Kim, Korea Institute of Materials Science, Korea; Toshihira Ishikawa, Ube Industries, Japan; Cheng Li, The Dow Chemical Company, China; Armin Reller, University of Augsburg, Germany; Kevin Plucknett, Dalhousie University, Canada

## **Symposium 19 –**

### **Glasses and Ceramics for Nuclear and Hazardous Waste Treatment**

**Organizers:** Aldo R. Boccaccini, Imperial College London, UK; Bill Lee, Imperial College London, UK; James Marra, Savannah River National Laboratory, Aiken, South Carolina; David Peeler, Savannah River National Laboratory, Aiken, South Carolina; Russell Hand, University of Sheffield, UK

# Symposia Organizers

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## **Symposium 20 –**

### **Advances in Biomineralized Ceramics, Bioceramics, and Bioninspired Designs**

**Organizers:** Joanna McKittrick, UC San Diego, USA; Francois Barthelat, McGill University, Canada; Seeram Ramakrishna, National University, Singapore; Jizhong Zhang, Tsinghua University, China; Julian Martinez Fernandez, University of Seville, Spain; Kunihito Koumoto, Nagoya University, Japan

## **Symposium 21 –**

### **Nano-Biotechnology and Ceramics in Biomedical Applications**

**Organizers:** Roger J Narayan, University of North Carolina, USA; Markus Reiterer, Medtronic, USA; Saranjit S. Bhasin, Delhi, India; Suwan Jayasinghe, United Kingdom; Chikara Ohtsuki, Nagoya University, Japan; Akiyoshi Osaka, Okayama University, Japan; Rizhi Wang, University of British Columbia, Canada

## **Symposium 22 –**

### **Environmental, Health, and Safety of Nanomaterials: Assessment and Measurement Needs**

**Organizers:** Steve Freiman, Freiman Consulting, Potomac, MD, USA; Sylvia Johnson, NASA Ames Research Center, CA, USA; Gary Fischman, NMAB, National Research Council, USA

## **Symposium 23 –**

### **Glass Science**

**Organizers:** Pierre Lucas, University of Arizona, USA; Lothar Wondraczek, University of Erlangen-Nuernberg, Germany; Adrian Wright, University of Reading, England; Klaus Bange, Schott, Germany; Josef Zwanziger, Dalhousie University, Canada

## **Symposium 24 –**

### **Glass Technology, Energy, and Environment**

**Organizers:** Pierre Lucas, University of Arizona, USA; Mark Davis, Schott, USA; Jean-Christophe Sangleboeuf, University of Rennes, France; Michael Greenman, Glass Manufacturing Industry Council, USA

## **Symposium 25 –**

### **Glasses for Optoelectronic and Optical Applications**

**Organizers:** Pierre Lucas, University of Arizona, USA; Setsuhisa Tanabe, Kyoto U, Japan; John Ballato, Clemson University, USA; Shibin Jiang, Advalue Photonic, AZ, USA; Kathleen Richardson, Clemson University, USA; Giancarlo C. Righini, CNR, Italy; Norman Anheier, PNNL, USA

## **Symposium 26 –**

### **Austen Angell Honorary Symposium**

**Organizers:** Jeff Yarger, Arizona State University, USA; Steve W. Martin, Iowa State University, USA; Pierre Lucas, U of Arizona, USA

## **Symposium 27 –**

### **International Fulrath Symposium on “New Frontiers of Ceramics for Sustainable Society”: In Honor of Prof. N. Ichinose and Prof. Richard C. Bradt**

**Organizers:** Koichi Niihara, Nagaoka University of Technology, Japan; M. Singh, OAI/NASA Glenn Research Center, Cleveland, USA; T. Yamamoto, National Defense Academy, Japan; Y. Sakabe, Murata Manufacturing, Japan; J.A. Salem, NASA Glenn Research Center, Cleveland, OH

## Oral Presenters

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<b>A</b>									
Aalund, R.	5-Jun	10:30AM	Prince of Wales	80	Bufetov, I.A.	4-Jun	3:20PM	Seymour	79
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Ahn, D.	3-Jun	9:00AM	Plaza A	60	Burianek, M.	4-Jun	9:20AM	Georgia B	69
Aitken, B.	2-Jun	2:40PM	Grouse	51	Byrappa, K.	1-Jun	4:10PM	Balmoral	35
Akedo, J.	2-Jun	11:00AM	Regency E	45	<b>C</b>				
Akedo, J.	4-Jun	1:50PM	Plaza B	73	Caillat, T.	4-Jun	3:30PM	Regency B	76
Alba-Simionesco, C.	2-Jun	3:50PM	Cypress	52	Calas, G.	3-Jun	10:40AM	Grouse	65
Algueró, M.	5-Jun	10:30AM	Regency A	81	Calvez, L.	4-Jun	3:50PM	Cypress	78
Allan, D.C.	4-Jun	5:50PM	Grouse	78	Carlie, N.A.	4-Jun	9:20AM	Seymour	72
Allocca, C.M.	3-Jun	10:20AM	Plaza B	64	Carpenter, M.A.	3-Jun	10:30AM	Balmoral	61
Almeida, R.	4-Jun	11:20AM	Grouse	71	Chae, T.	4-Jun	2:20PM	Georgia A	77
Aman, Y.	4-Jun	1:40PM	Prince of Wales	74	Champagnon, B.	4-Jun	3:20PM	Grouse	78
Aminian, A.	1-Jun	5:20PM	Georgia A	38	Chang, C.S.	4-Jun	5:20PM	Georgia B	76
Aminian, A.	2-Jun	5:10PM	Georgia A	50	Chang, T.	4-Jun	2:20PM	Balmoral	74
Aminian, A.	4-Jun	11:10AM	Georgia A	71	Chen, B.	2-Jun	5:00PM	Grouse	51
Annamalai, S.	2-Jun	2:20PM	Grouse	51	Chen, H.	4-Jun	10:00AM	Balmoral	68
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Asahi, R.	4-Jun	11:10AM	Regency B	69	Chen, J.	4-Jun	10:20AM	Georgia B	69
Aubert, T.	2-Jun	9:00AM	Balmoral	40	Chen, P.	4-Jun	4:40PM	Georgia A	77
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Azuma, S.	2-Jun	2:00PM	English Bay	45	Cheng, L.	1-Jun	3:20PM	Oxford	35
<b>B</b>					Chia, C.	1-Jun	1:50PM	Regency B	36
Babonneau, F.	1-Jun	1:50PM	Plaza A	33	Ching, W.	4-Jun	8:30AM	English Bay	66
Backnäs, L.J.	3-Jun	9:10AM	Stanley	65	Chirita, V.	4-Jun	4:40PM	English Bay	73
Bahnemann, D.W.	2-Jun	11:50AM	Regency F	42	Cho, K.	5-Jun	9:20AM	Regency A	81
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Bandyopadhyay, A.	3-Jun	11:00AM	Prince of Wales	62	Chou, C.	2-Jun	9:30AM	Regency B	42
Bandyopadhyay, A.	4-Jun	9:20AM	Plaza B	67	Chu, S.	4-Jun	9:00AM	Oxford	70
Bao, D.	4-Jun	3:10PM	Regency A	75	Ciccotti, M.	4-Jun	2:00PM	Stanley	79
Barnett, S.	3-Jun	8:30AM	Georgia B	63	Clare, A.G.	2-Jun	1:50PM	Georgia A	50
Barsoum, M.W.	5-Jun	8:30AM	Regency E	80	Cole, M.W.	3-Jun	11:10AM	Regency B	63
Barsoum, M.W.	5-Jun	9:00AM	Regency E	80	Collignon, J.	3-Jun	8:30AM	Stanley	65
Beerkens, R.	3-Jun	10:30AM	Stanley	65	Connolly, A.J.	5-Jun	8:30AM	Georgia B	81
Belmonte, M.	4-Jun	11:00AM	Prince of Wales	68	Conradt, R.	5-Jun	11:00AM	Grouse	83
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Bernard-Granger, G.	4-Jun	8:30AM	Prince of Wales	68	Cormier, L.	3-Jun	9:00AM	Grouse	64
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Berneschi, S.	4-Jun	4:50PM	Seymour	79	Courtois, E.	5-Jun	11:20AM	Prince of Wales	80
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Berroth, K.	2-Jun	1:30PM	Oxford	47	<b>D</b>				
Bezold, A.	3-Jun	11:00AM	Oxford	62	Dabbarh, S.	3-Jun	11:20AM	Oxford	62
Bharadwaja, S.	2-Jun	8:50AM	Regency A	41	Dae Ju, H.	1-Jun	5:40PM	Plaza C	34
Bhatt, R.	1-Jun	2:10PM	Oxford	35	Davis, M.	2-Jun	5:10PM	Stanley	51
Bian, J.J.	1-Jun	4:10PM	Regency B	36	Day, D.	2-Jun	9:20AM	Georgia A	43
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Bichoutskaia, E.	4-Jun	8:30AM	Balmoral	68	DeHazan, Y.	3-Jun	11:10AM	Plaza C	61
Bilek, M.	4-Jun	4:00PM	English Bay	72	Deubener, J.	2-Jun	11:20AM	Stanley	44
Blum, Y.	1-Jun	3:20PM	Prince of Wales	35	Deubener, J.	2-Jun	2:20PM	Stanley	51
Blum, Y.	4-Jun	2:30PM	Plaza A	73	Devanathan, R.	4-Jun	10:20AM	English Bay	66
Boccaccini, A.R.	1-Jun	1:20PM	Georgia A	38	Devanathan, R.	4-Jun	9:00AM	Plaza C	70
Boccaccini, A.R.	4-Jun	2:40PM	Plaza C	77	DiAntonio, C.	1-Jun	1:50PM	Plaza C	34
Boccaccini, A.R.	5-Jun	10:30AM	Regency E	80	DiAntonio, C.	3-Jun	8:30AM	Regency A	63
Bohmer, R.	3-Jun	9:10AM	Cypress	66	Dibandjo, P.	4-Jun	2:40PM	Oxford	76
Bondarchuk, O.	2-Jun	2:50PM	Regency A	49	DiCarlo, J.	1-Jun	1:50PM	Oxford	35
Boolchand, P.	4-Jun	11:00AM	Cypress	71	Dickinson, J.E.	2-Jun	4:40PM	Grouse	51
Borjesson, L.	2-Jun	2:30PM	Cypress	52	Dincer, I.	3-Jun	10:20AM	Georgia B	64
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Bose, S.	1-Jun	4:50PM	Georgia B	37	Dogan, F.	4-Jun	4:40PM	Georgia B	76
Bose, S.	5-Jun	11:00AM	Georgia A	83	Domí, Y.	2-Jun	2:40PM	Oxford	48
Bose, S.	5-Jun	12:20PM	Georgia A	83	Doo, S.	5-Jun	9:00AM	Regency C	81
Bowles, R.K.	3-Jun	11:20AM	Cypress	66	Drennan, J.	4-Jun	3:10PM	Georgia B	75
Bowles, R.K.	5-Jun	11:30AM	Cypress	83	Drexler, J.	1-Jun	2:20PM	Prince of Wales	35
Bradt, R.C.	1-Jun	1:20PM	Regency E	38	Du, J.	5-Jun	11:50AM	Grouse	83
Braue, W.	1-Jun	1:50PM	Prince of Wales	35	Dubiel, M.H.	3-Jun	11:40AM	Seymour	66
Brennecka, G.L.	2-Jun	10:40AM	Regency A	42	Duran, C.	1-Jun	3:50PM	Plaza C	34
Bretcanu, O.	5-Jun	8:50AM	Georgia A	82	Dutta, B.	5-Jun	10:40AM	Stanley	84
Brow, R.	4-Jun	1:30PM	Plaza C	77	Dyre, J.C.	2-Jun	4:20PM	Cypress	52
Brown, I.W.	1-Jun	2:10PM	Balmoral	34	<b>E</b>				
Brüning, R.	5-Jun	8:30AM	Cypress	83	Ebacher, V.	4-Jun	5:10PM	Georgia A	77
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Eils, N.K.	1-Jun	4:10PM	Prince of Wales	36	Hartmann, D.	4-Jun	8:20AM	Stanley	72
Ellison, A.	4-Jun	10:00AM	Stanley	72	Hasegawa, M.	2-Jun	11:20AM	Prince of Wales	41
Endo, A.	2-Jun	5:00PM	Regency A	49	Hashimoto, K.	1-Jun	1:20PM	Regency F	37
Es-Souni, M.	2-Jun	10:50AM	Balmoral	40	Haworth, R.	2-Jun	9:20AM	Grouse	43
<b>F</b>					Hay, R.	1-Jun	2:30PM	Oxford	35
Fagerlund, S.	2-Jun	10:20AM	Georgia A	43	Hay, R.	1-Jun	4:40PM	Oxford	35
Faghihisani, M.	2-Jun	9:00AM	Plaza C	40	Hay, S.	2-Jun	8:30AM	Regency F	42
Faghihi-Sani, M.	4-Jun	4:30PM	Plaza B	73	Hayakawa, S.	3-Jun	9:00AM	Georgia A	64
Fan, C.	3-Jun	8:30AM	Balmoral	61	Hayd, J.	2-Jun	4:20PM	Georgia B	50
Fan, J.	2-Jun	9:00AM	English Bay	39	Hemmati, M.	2-Jun	5:40PM	Cypress	53
Fan, S.	2-Jun	2:20PM	Oxford	47	Hemmer, E.	4-Jun	11:20AM	Balmoral	68
Ferrari, M.	4-Jun	5:10PM	Seymour	79	Hench, L.L.	1-Jun	11:20AM	Regency C & D / E & F	33
Fletcher, L.B.	2-Jun	5:00PM	Seymour	52	Hench, L.L.	3-Jun	8:30AM	Plaza B	64
Franco, S.S.	5-Jun	11:30AM	Plaza B	80	Henderson, G.	5-Jun	8:50AM	Cypress	83
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Freiman, S.	3-Jun	10:50AM	Plaza B	64	Hewak, D.	2-Jun	11:20AM	Seymour	44
Frumar, M.	2-Jun	1:20PM	Seymour	52	Hill, B.E.	1-Jun	1:50PM	Balmoral	34
Fujishiro, Y.	3-Jun	9:00AM	Georgia B	63	Hirao, K.	2-Jun	11:40AM	Seymour	44
Fujitsu, S.	2-Jun	9:30AM	Regency E	45	Hoeland, W.	2-Jun	2:00PM	Stanley	51
Fukui, T.	2-Jun	8:30AM	Plaza C	40	Hong, Z.	1-Jun	5:10PM	Prince of Wales	36
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Funakubo, H.	2-Jun	10:10AM	Regency E	45	Horiuchi, N.	5-Jun	10:40AM	Regency C	81
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Furushima, R.	2-Jun	3:50PM	Plaza C	47	Hosokura, T.	5-Jun	10:00AM	Regency C	81
<b>G</b>					Hotta, Y.	3-Jun	10:50AM	Plaza C	61
Gadow, R.	2-Jun	8:30AM	Plaza A	39	Hrabe, N.	5-Jun	11:20AM	Georgia A	83
Galoisy, L.	4-Jun	10:20AM	Plaza C	70	Hu, J.	4-Jun	8:30AM	Seymour	72
Gao, Y.	2-Jun	9:20AM	Plaza C	40	Hu, T.	2-Jun	11:20AM	Regency B	42
Garay, J.	4-Jun	2:00PM	Prince of Wales	74	Huang, C.	4-Jun	10:00AM	Georgia B	69
Garcia, R.	2-Jun	4:40PM	Georgia B	50	Huang, C.	5-Jun	9:50AM	Regency B	82
Garcia, R.	3-Jun	10:00AM	English Bay	60	Huang, J.	3-Jun	8:30AM	Prince of Wales	62
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Geleil, A.S.	3-Jun	10:20AM	Seymour	65	Idrobo, J.	2-Jun	1:30PM	English Bay	45
Geleil, A.S.	4-Jun	4:30PM	Oxford	77	Iijima, T.	2-Jun	9:00AM	Regency E	45
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Goetschius, K.L.	4-Jun	5:50PM	Seymour	79	Inoue, M.	2-Jun	9:50AM	Georgia B	43
Golestanifard, F.	4-Jun	11:00AM	Balmoral	68	Ionescu, E.	4-Jun	9:20AM	Plaza A	67
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Goto, T.	2-Jun	10:30AM	Regency E	45	Ishikawa, T.	3-Jun	8:30AM	Plaza A	60
Goto, T.	4-Jun	1:20PM	Plaza B	73	Ito, K.	2-Jun	5:40PM	Balmoral	47
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Grande, T.	2-Jun	10:00AM	Cypress	45	Jafari, M.	2-Jun	5:50PM	Prince of Wales	48
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Greaves, G.N.	4-Jun	1:50PM	Grouse	78	Jang, B.	5-Jun	11:10AM	Plaza B	80
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Guignard, M.	2-Jun	3:50PM	Stanley	51	Jha, A.	4-Jun	3:20PM	Cypress	78
Guin, J.	2-Jun	9:20AM	Stanley	44	Jiang, S.	2-Jun	2:20PM	Georgia B	50
Guin, J.	5-Jun	9:00AM	Stanley	84	Jiang, X.	2-Jun	2:40PM	Seymour	52
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<b>H</b>					Johari, G.P.	5-Jun	10:30AM	Cypress	83
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Jonson, B.	5-Jun	9:20AM	Stanley	84	Kutnjak, Z.	5-Jun	11:40AM	Regency A	81
<b>K</b>					Kwong, K.	4-Jun	5:20PM	English Bay	73
Kagata, H.	2-Jun	8:30AM	Regency B	42	Kyushin, S.	4-Jun	11:30AM	Plaza A	67
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Kakimoto, K.	3-Jun	9:20AM	Regency A	63	Langer, J.	4-Jun	2:20PM	Prince of Wales	74
Kakisawa, H.	4-Jun	5:30PM	Georgia A	77	Le Coq, D.	2-Jun	9:00AM	Grouse	43
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Kang, S.	2-Jun	3:50PM	English Bay	46	Lee, J.	4-Jun	10:10AM	Regency A	69
Kang, S.L.	2-Jun	2:10PM	Regency A	49	Lee, K.	2-Jun	2:40PM	Prince of Wales	48
Kappa, M.	4-Jun	1:50PM	Plaza A	73	Lee, K.	4-Jun	5:00PM	English Bay	73
Kara, A.	2-Jun	4:10PM	Oxford	48	Leinonen, M.	4-Jun	9:20AM	Oxford	70
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Kauzlarich, S.	4-Jun	1:50PM	Regency B	76	Leonelli, C.	5-Jun	10:50AM	Regency E	80
Keding, R.	1-Jun	2:00PM	Regency D	33	Leonide, A.	3-Jun	11:10AM	Georgia B	64
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Kern, F.	2-Jun	2:00PM	Plaza C	46	Letz, M.	5-Jun	10:20AM	Regency C	81
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Kieffer, J.	5-Jun	8:30AM	Grouse	83	Li, J.	1-Jun	3:50PM	Oxford	35
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Kijima, K.	4-Jun	9:00AM	Plaza B	67	Li, J.	3-Jun	8:50AM	Regency A	63
Kikkawa, S.	1-Jun	5:20PM	Regency E	38	Li, J.	4-Jun	10:30AM	Plaza A	67
Kilner, J.A.	2-Jun	3:20PM	Georgia B	50	Li, L.	2-Jun	2:40PM	Regency B	49
Kim, B.	4-Jun	5:00PM	Prince of Wales	74	Li, Q.	5-Jun	8:30AM	Regency B	82
Kim, C.	3-Jun	9:00AM	Prince of Wales	62	Li, Y.	2-Jun	4:50PM	Plaza A	46
Kim, E.	2-Jun	4:20PM	Regency B	49	Liao, W.	3-Jun	9:00AM	Regency B	63
Kim, H.	1-Jun	3:20PM	Georgia B	37	Lim, J.	2-Jun	5:40PM	Seymour	52
Kim, J.	3-Jun	10:50AM	Georgia B	64	Lin, I.	1-Jun	2:20PM	Regency B	36
Kim, J.	4-Jun	3:50PM	Oxford	77	Lin, S.	2-Jun	3:40PM	Georgia B	50
Kim, J.	4-Jun	8:30AM	Regency A	68	Lin, Y.	2-Jun	9:00AM	Georgia B	43
Kim, Y.	1-Jun	2:20PM	Georgia B	37	Liu, B.	4-Jun	9:20AM	English Bay	66
Kimura, T.	2-Jun	3:30PM	Plaza C	47	Liu, C.	2-Jun	3:40PM	Seymour	52
Kirihara, S.	2-Jun	1:20PM	Regency B	49	Liu, H.	5-Jun	10:30AM	Oxford	82
Kirihara, S.	4-Jun	1:20PM	Regency A	75	Liu, R.	4-Jun	10:30AM	Oxford	70
Kishi, T.	1-Jun	10:40AM	Regency C & D / E & F	33	Liu, S.	4-Jun	5:40PM	English Bay	73
Kishimoto, A.	5-Jun	9:20AM	Plaza B	80	Liu, W.	3-Jun	11:40AM	Prince of Wales	62
Kita, H.	5-Jun	10:00AM	Oxford	82	Locci, A.M.	4-Jun	10:10AM	Prince of Wales	68
Kita, K.	2-Jun	11:40AM	Plaza A	39	Locci, A.M.	4-Jun	4:40PM	Prince of Wales	74
Kitamura, N.	3-Jun	9:20AM	Seymour	65	Logunov, S.L.	4-Jun	10:00AM	Grouse	71
Kleebe, H.	3-Jun	11:20AM	Plaza A	60	Long, X.	4-Jun	5:50PM	Regency A	75
Kleinke, H.	4-Jun	4:00PM	Regency B	76	Long, Y.	3-Jun	9:20AM	Balmoral	61
Klemensoe, T.	3-Jun	10:30AM	Plaza C	61	Lonnroth, N.	5-Jun	10:50AM	Georgia B	82
Klemm, H.	2-Jun	3:50PM	Oxford	48	Loucks, R.J.	4-Jun	5:30PM	Grouse	78
Kodera, Y.	5-Jun	10:50AM	Prince of Wales	80	Loucks, R.J.	5-Jun	9:00AM	Grouse	83
Koga, Y.	2-Jun	8:30AM	Prince of Wales	41	Lowther, J.E.	4-Jun	1:50PM	English Bay	72
Kojima, S.	3-Jun	11:20AM	Regency A	63	Lu, F.	4-Jun	4:10PM	Plaza B	73
Kokubo, T.	1-Jun	3:45PM	Regency D	33	Lu, K.	5-Jun	11:10AM	Georgia B	82
Kokubo, T.	3-Jun	9:50AM	Georgia A	64	Lu, K.	5-Jun	9:10AM	Georgia B	81
Kolobov, A.	4-Jun	1:20PM	Cypress	78	Lu, S.	2-Jun	4:30PM	Georgia A	50
Kolodiaznyi, T.	1-Jun	3:20PM	Regency B	36	Lu, W.	2-Jun	4:40PM	Regency B	49
Komatsu, T.	1-Jun	2:40PM	Regency E	38	Lu, Y.A.	3-Jun	11:20AM	Prince of Wales	62
Komatsu, T.	2-Jun	3:20PM	Stanley	51	Lucas, J.	2-Jun	3:20PM	Cypress	52
Komeya, K.	2-Jun	3:20PM	Oxford	48	Lucas, P.	2-Jun	11:00AM	Cypress	45
Kondo, Y.	4-Jun	2:40PM	Seymour	79	Lucas, P.	4-Jun	10:10AM	Seymour	72
Konegger, T.	1-Jun	2:40PM	Plaza A	33	Lucovsky, G.	3-Jun	8:30AM	Grouse	64
Korneychuk, S.	5-Jun	8:30AM	Georgia A	82	Lufaso, M.W.	4-Jun	4:20PM	Georgia B	75
Koseski, R.P.	2-Jun	4:10PM	Stanley	51	Lumeau, J.	2-Jun	10:00AM	Grouse	43
Kosmac, T.	3-Jun	10:30AM	Prince of Wales	62	Luo, J.	2-Jun	3:20PM	English Bay	46
Koumoto, K.	2-Jun	8:30AM	Regency E	45	Luther, E.	1-Jun	3:50PM	Balmoral	35
Kozmidis-Petrovic, A.F.	5-Jun	11:30AM	Grouse	83	Luyten, J.	1-Jun	1:20PM	Georgia B	37
Kozuka, H.	4-Jun	1:20PM	Plaza A	73	Luyten, J.	5-Jun	11:40AM	Georgia A	83
Krenkel, W.	2-Jun	2:00PM	Oxford	47	<b>M</b>				
Kriven, W.M.	4-Jun	1:20PM	Balmoral	74	MacKenzie, K.	4-Jun	1:50PM	Balmoral	74
Kriven, W.M.	4-Jun	4:50PM	Balmoral	74	Mahmoudysephehr, M.	4-Jun	3:20PM	Plaza C	77
Kroeker, S.	5-Jun	10:00AM	Cypress	83	Maiwa, H.	1-Jun	4:20PM	Regency E	38
Kuščer Hrvatin, D.	2-Jun	10:20AM	Regency A	41	Mallick, K.K.	1-Jun	3:40PM	Georgia A	38
Kume, S.	3-Jun	11:30AM	Plaza C	61	Manning, S.	3-Jun	8:40AM	Seymour	65
Kunishima, T.	5-Jun	10:30AM	Plaza B	80	Manocha, L.	1-Jun	4:00PM	Plaza B	37
Kuo, C.	2-Jun	5:20PM	Balmoral	47	Manocha, L.	4-Jun	11:40AM	Balmoral	68
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Martin, S.	2-Jun	8:40AM	Cypress	45	Niihara, K.	1-Jun	3:20PM	Regency E	38
Martin, S.	4-Jun	4:50PM	Cypress	78	Nishimoto, S.	1-Jun	1:50PM	Regency F	37
Martin, V.	2-Jun	10:40AM	Grouse	43	Noguchi, Y.	4-Jun	11:10AM	Regency A	69
Martinez-Crespiera, S.	4-Jun	10:50AM	Plaza A	67	Nolas, G.S.	4-Jun	9:50AM	Regency B	69
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Martucci, A.	4-Jun	9:00AM	Grouse	71	Nourbakhsh, A.A.	4-Jun	10:40AM	Balmoral	68
Masselin, P.	4-Jun	10:30AM	Seymour	72	Novita, D.I.	2-Jun	1:40PM	Grouse	51
Massera, J.	2-Jun	5:20PM	Seymour	52	Nychka, J.A.	4-Jun	8:30AM	Georgia A	70
Masuda, Y.	2-Jun	1:50PM	Balmoral	47	Nygren, M.	4-Jun	3:20PM	Prince of Wales	74
Masuda, Y.	4-Jun	3:50PM	Plaza B	73					
Masuno, A.	2-Jun	10:20AM	Seymour	44			<b>O</b>		
Mathur, S.	2-Jun	8:30AM	Balmoral	40	Obraztsov, A.N.	2-Jun	4:20PM	Prince of Wales	48
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Matsuda, Y.	2-Jun	1:20PM	Grouse	51	Ohara, S.	1-Jun	4:50PM	Plaza C	34
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Mauro, J.C.	4-Jun	5:10PM	Grouse	78	Ohgoe, Y.	2-Jun	11:40AM	Prince of Wales	41
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Mazzoldi, P.	4-Jun	8:30AM	Grouse	71	Ohsato, H.	1-Jun	3:50PM	Regency B	36
Mechighel, F.	2-Jun	4:20PM	English Bay	46	Ohta, H.	4-Jun	2:20PM	Regency B	76
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Messing, G.L.	3-Jun	10:00AM	Regency A	63	Ozawa, M.	1-Jun	4:20PM	Georgia B	37
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Morita, K.	4-Jun	2:40PM	Prince of Wales	74	Perkins, J.B.	4-Jun	11:20AM	Prince of Wales	68
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Moritz, T.	5-Jun	9:00AM	Plaza B	80	Petrovich, M.	4-Jun	3:50PM	Seymour	79
Mousseau, N.	5-Jun	10:00AM	Grouse	83	Petuskey, W.T.	2-Jun	11:20AM	Cypress	45
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Mueller, R.	2-Jun	2:40PM	Stanley	51	Phillpot, S.	3-Jun	9:00AM	English Bay	60
Munir, Z.A.	4-Jun	4:20PM	Prince of Wales	74	Pignolet, A.	5-Jun	10:00AM	Regency A	81
Munoz, F.	2-Jun	2:00PM	Grouse	51	Piispanen, M.	2-Jun	9:00AM	Regency F	42
Muralt, P.	2-Jun	3:30PM	Regency A	49	Plachky, T.	2-Jun	4:30PM	Plaza A	46
		<b>N</b>			Plucknett, K.P.	1-Jun	2:40PM	Georgia B	37
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Nagaoka, T.	3-Jun	9:20AM	Plaza C	61	Plucknett, K.P.	2-Jun	2:20PM	Plaza C	46
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Nakayama, T.	5-Jun	9:00AM	Oxford	82	Poole, P.	5-Jun	11:00AM	Cypress	83
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Narang, S.	2-Jun	5:00PM	Regency B	49	Potuzak, M.	2-Jun	4:20PM	Grouse	51
Narayan, R.J.	1-Jun	5:00PM	Georgia A	38	Prades, J.	3-Jun	11:00AM	Balmoral	61
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Rouxel, T.	2-Jun	11:40AM	Stanley	44	Stebbins, J.F.	4-Jun	1:20PM	Grouse	78
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Sakamoto, Y.	2-Jun	2:20PM	Prince of Wales	48	Suzuki, H.	5-Jun	11:20AM	Regency C	81
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Schneider, H.	4-Jun	10:40AM	Georgia B	69	Takikawa, H.	2-Jun	9:00AM	Prince of Wales	41
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Serivalsatit, K.	2-Jun	10:30AM	Plaza C	40	Toma, L.	4-Jun	9:00AM	Plaza A	67
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Shackelford, J.	3-Jun	8:30AM	Georgia A	64	Tomeno, S.	3-Jun	10:20AM	Grouse	65
Shafiei, S.	2-Jun	3:30PM	Georgia A	50	Tomozawa, M.	2-Jun	10:40AM	Stanley	44
Sheldon, B.W.	2-Jun	10:30AM	English Bay	39	Tomozawa, M.	2-Jun	5:20PM	Cypress	53
Shen, H.	2-Jun	5:00PM	Balmoral	47	Tran, L.	3-Jun	9:50AM	Plaza B	64
Shepherd, P.	4-Jun	4:00PM	Regency A	75	Traversa, E.	1-Jun	1:20PM	Balmoral	34
Sherwood, W.J.	2-Jun	3:20PM	Plaza A	46	Traversa, E.	2-Jun	11:00AM	Georgia A	43
Shim, S.	2-Jun	3:20PM	Seymour	52	Traversa, E.	3-Jun	11:20AM	Plaza B	64
Shimada, T.	1-Jun	2:40PM	Regency B	36	Traversa, E.	4-Jun	4:00PM	Georgia B	75
Shimamura, K.	2-Jun	3:10PM	Regency E	53	Troles, J.	4-Jun	1:50PM	Seymour	79
					Tseng, W.J.	1-Jun	5:10PM	Plaza A	34

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Tsuda, H.	4-Jun	2:10PM	Regency A	75	Wondraczek, L.	4-Jun	3:50PM	Grouse	78
Tsurumi, T.	5-Jun	9:20AM	Regency C	81	Wondraczek, L.	4-Jun	5:30PM	Regency B	76
<b>U</b>					Wong, F.	1-Jun	2:40PM	Plaza C	34
Uchikoshi, T.	3-Jun	8:30AM	Plaza C	61	Wong, M.	2-Jun	10:40AM	Regency F	42
Uehara, H.	2-Jun	4:00PM	Seymour	52	Wong-Ng, W.	5-Jun	9:30AM	Regency B	82
Uematsu, K.	3-Jun	10:00AM	Plaza C	61	Woodcock, L.	2-Jun	2:00PM	Cypress	52
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<b>V</b>					Wu, J.	2-Jun	4:00PM	Grouse	51
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van Duin, A.	4-Jun	10:40AM	English Bay	66	Xiao, P.	2-Jun	3:50PM	Prince of Wales	48
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van Veggel, F.C.	2-Jun	8:30AM	Seymour	44	Yamanaka, S.	4-Jun	10:40AM	Regency B	69
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Vogt, U.F.	3-Jun	11:30AM	Georgia B	64	Yoshimura, M.	1-Jun	4:40PM	Balmoral	35
<b>W</b>					Yoshimura, M.	2-Jun	11:30AM	Regency E	45
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## Monday, June 1, 2009

## Plenary Session

## Global Megatrends: Challenges and Opportunities for Ceramics

Room: Regency C &amp; D / E &amp; F

Session Chair: M. Singh, Ohio Aerospace Institute

9:00 AM

## Welcome and Introduction

M. Singh, Program Chair

9:40 AM

## (PACRIM8-PL-001-2009) 2009 Global R&amp;D and Innovation in Glass and Ceramics at Corning (Invited)

J. A. Miller\*, Corning Incorporated, USA

10:20 AM

## Break

10:40 AM

## (PACRIM8-PL-002-2009) Research on Ceramics: State of the Art and Future Challenges in Japan (Invited)

T. Kishi\*, National Institute for Materials Science, Japan

11:20 AM

## (PACRIM8-PL-003-2009) Discovery and Clinical Uses of Bioglass: A 40 Year Retrospective (Invited)

L. L. Hench\*, University of Florida, USA

## ICG and GOMD Glass Plenary Session

Room: Regency D

## ICG Plenary Session and Opening Ceremony

1:20 PM

Welcome and Introduction, ICG President, Dr. Hervé Arribart

1:35 PM

## Turner Award 2009

Award Winner: Prof. Wolfram Hoeland, Ivoclar Vivadent AG, Liechtenstein

1:50 PM

## V. Gottardi Prize 2009 and Lecture

Award Winner: Dr. Ralf Keding, Aalborg University, Denmark  
*Creation of the First Nuclei in Undercooled Melts*

2:30 PM

## Break

## GOMD Plenary Session

2:50 PM

## GOMD Opening Remarks

3:00 PM

## George W. Morey Award Lecture

Award Winner: Dr. Prabhat K. Gupta, The Ohio State University, USA  
*Reflections on the Thermodynamics of Glass Transition*

3:45 PM

## Stookey Lecture of Discovery

Award Winner: Tadashi Kokubo, Chubu University, Japan

*Development of Novel Bioactive Materials based on Nucleation and Crystal Growth*

4:30 PM

## Norbert J. Kreidl Award for Young Scholars

Award Winner: Inseok Seo, Iowa State University, USA

*Structure, Composition and High Ionic Conductivity of  $x\text{Li}_2\text{S}+\text{GeS}_2$  ( $x=1, 2$  and  $3$ ) Thin Film Electrolytes Grown by RF Sputtering for Solid State Li-ion Batteries*

## Symposium 04: Polymer Derived Ceramics and Composites

## Porous Components I

Room: Plaza A

Session Chair: Paolo Colombo, University of Padova

1:20 PM

## (PACRIM8-S04-001-2009) Cellular ceramics and glasses from silicone compounds (Invited)

M. Scheffler\*, Brandenburg Technical University, Germany

1:50 PM

## (PACRIM8-S04-002-2009) Templated Mesoporous Silicon Oxycarbide powders and thin films

A. Pauletti, C. Fernandez-Martin, C. Boissière, C. Gervais, F. Babonneau\*, UPMC-Paris6 &amp; CNRS, France

2:10 PM

## (PACRIM8-S04-003-2009) Functional hybrid materials derived from polysiloxanes for adsorption technique and catalysis (Invited)

M. Wilhelm\*, M. Adam, C. Harms, M. Baeumer, G. Grathwohl, University of Bremen, Germany

2:40 PM

## (PACRIM8-S04-004-2009) Computer-tomographical assessment of the pore evolution in PDCs

T. Konegger\*, Vienna University of Technology, Austria; M. Kappa, Brandenburg Technical University (BTU) Cottbus, Germany; A. Liersch, Vienna University of Technology, Austria; M. Scheffler, Brandenburg Technical University (BTU) Cottbus, Germany

3:00 PM

## Break

## Porous Components II

Room: Plaza A

Session Chair: Raj Bordia, University of Washington

3:20 PM

## (PACRIM8-S04-005-2009) Development of Si-N based hydrogen separation membrane (Invited)

K. Miyajima\*, T. Eda, Y. Ando, Noritake Co., Limited, Japan

3:50 PM

## (PACRIM8-S04-006-2009) Polymer-derived Micro-/Meso-porous Amorphous Silica-based Materials

Y. Iwamoto\*, H. Ishihara, S. Honda, S. Hashimoto, Nagoya Institute of Technology, Japan

4:10 PM

## (PACRIM8-S04-008-2009) Polymer derived ceramic foams with hierarchical porosity

C. Vakifahmetoglu\*, Uni. of Padova, Italy; P. Colombo, The Pennsylvania State University, USA

4:30 PM

(PACRIM8-S04-009-2009) Nanostructured boron- and silicon-based mesoporous materials via preceramic polymer Nanocasting

P. Miele\*, P. Dibandjo, L. Bois, L. Gottardo, O. Majoulet, S. Bernard, Universite de Lyon, France

4:50 PM

(PACRIM8-S04-010-2009) Subcritically Dried, Methyltriethoxysilane-based Aerogels as precursors for porous SiCO Glasses

A. Parakkulam Ramaswamy\*, G. Soraru, University of Trento, Italy

5:10 PM

(PACRIM8-S04-011-2009) A Novel Technique for Synthesizing Nanoshell Hollow Alumina-Platinum Particles

W. J. Tseng\*, Y. Wang, W. Li, T. Tseng, National Chung Hsing University, Taiwan

5:30 PM

(PACRIM8-S04-012-2009) Pre-ceramic Polymer – A Materials Technology with Enormous Potential (Invited)

C. Saha\*, G. Knasiak, G. McCraw, KION Specialty Polymers, A Clariant Company, USA

## Symposium 05: Advanced Powder Processing and Manufacturing Technologies

### Powder Synthesis I

Room: Plaza C

Session Chairs: Yuji Hotta, National Institute of Advanced Industrial Science and Technology (AIST); Satoshi Ohara, Osaka University

1:20 PM

(PACRIM8-S05-001-2009) Synthesis of TiO<sub>2</sub> nano-size powders in reactive thermal plasma and their dispersion behavior (Invited)

T. Ishigaki\*, National Institute for Materials Science, Japan

1:50 PM

(PACRIM8-S05-002-2009) Synthesis, Processing and Characterization of Nanoparticle PLZT (Invited)

C. DiAntonio\*, P. Yang, M. Winter, T. Monson, D. Huber, M. Rodriguez, T. Chavez, Sandia National Laboratories, USA

2:20 PM

(PACRIM8-S05-003-2009) Synthesis of Rare Earth Iron Mixed Oxides by Solvothermal Method and Their Catalytic Activities for Methane Combustion

S. Hosokawa\*, H. Jeon, M. Inoue, Graduate School of Engineering, Kyoto University, Japan

2:40 PM

(PACRIM8-S05-004-2009) Mullite - Mullite Coatings by Composite Sol Gel

F. Wong\*, T. Troczynski, C. Oprea, The University of British Columbia, Canada; A. Welch, C. Blair, Westport Innovations, Canada

3:00 PM

Break

### Powder Synthesis II

Room: Plaza C

Session Chairs: Takamasa Ishigaki, National Institute for Materials Science; Hasan Gocmez, Dumlupinar University

3:20 PM

(PACRIM8-S05-005-2009) Synthesis of Refractory Diboride and Carbide Powders with Fine Particle Size and Good Sinterability (Invited)

G. Zhang\*, Shanghai Institute of Ceramics, China

3:50 PM

(PACRIM8-S05-006-2009) Ball Milling Assisted Hydrothermal Synthesis of Nano ZrO<sub>2</sub> Powders (Invited)

C. Duran\*, Gebze Institute of Technology, Turkey; K. Sato, Y. Hotta, K. Watari, National Institute of Advanced Industrial Science and Technology, Japan

4:20 PM

(PACRIM8-S05-007-2009) Synthesis and Formation Mechanism of SiAlONs by Nitridation using Ammonia Gas (Invited)

T. Wakihara\*, J. Tatami, K. Komeya, T. Meguro, Yokohama National University, Japan; K. MacKenzie, Victoria University of Wellington, New Zealand

### Powder Synthesis III

Room: Plaza C

Session Chairs: Guo-Jun Zhang, Shanghai Institute of Ceramics; Saburo Hosokawa, Graduate School of Engineering, Kyoto University

4:50 PM

(PACRIM8-S05-008-2009) Fabrication of Tailor-made Ceramic Nanocrystals (Invited)

S. Ohara\*, K. Sato, Z. Tan, H. Abe, Osaka University, Japan

5:20 PM

(PACRIM8-S05-009-2009) ZnO based Varistors processed by Reaction Bonding

A. A. Pech-Vidal\*, C. Gomez-Yanez, E. Rocha-Rangel, National Polytechnique Institute, Mexico

5:40 PM

(PACRIM8-S05-010-2009) Manufacturing and Characterizations of calcium-aluminium double layer hydroxide by using Ca(OH)<sub>2</sub> and amorphous Al (OH)<sub>3</sub>

H. Dae Ju\*, Korea Institute of Limestone and Advanced Materials, Korea, South

## Symposium 07: Nanostructured Materials and Systems

### Synthesis, Functionalization and Processing of Nanostructures

Room: Balmoral

Session Chair: Sanjay Mathur, Institute of Inorganic Chemistry

1:20 PM

(PACRIM8-S07-001-2009) Nanostructured Oxide Thin Films for Miniaturized Solid Oxide Fuel Cells (Invited)

E. Traversa\*, Univ. Roma Tor Vergata, Italy

1:50 PM

(PACRIM8-S07-002-2009) Development of nanoporous ceramics through selective reduction reactions

B. E. Hill\*, M. E. Miller, S. T. Mixture, Alfred University, USA

2:10 PM

(PACRIM8-S07-003-2009) Hydrogen Separation Membranes from Nanostructured Alumina Ceramics

I. W. Brown\*, Industrial Research (IRL), New Zealand, Industrial Research (IRL), New Zealand; MacDiarmid Institute for Advanced Materials & Nanotechnology, New Zealand; J. Wu, M. E. Bowden, Industrial Research (IRL), New Zealand; K. J. MacKenzie, T. Kemmitt, MacDiarmid Institute for Advanced Materials & Nanotechnology, New Zealand

2:30 PM

(PACRIM8-S07-004-2009) Biphasic Nano-Materials and Applications in Life Sciences (Invited)

M. Veith\*, C. Aktas, E. Sow, Leibniz-Institute for New Materials, Germany

3:00 PM

Break

3:20 PM

(PACRIM8-S07-005-2009) Solution processing of complex nano materials; oxides and metal-in-ceramic composites (Invited)

G. Westin\*, Uppsala University, Sweden

**3:50 PM****(PACRIM8-S07-006-2009) Nanostructured Foams: Synthesis and Applications**

E. Luther\*, B. Tappan, D. Chavez, J. Veauthier, P. Papin, H. Volz, R. Dickerson, Los Alamos National Laboratory, USA

**4:10 PM****(PACRIM8-S07-007-2009) Novel Routes of Hydrothermal Processing of Advanced Nanomaterials (Invited)**

K. Byrappa\*, University of Mysore, India

**4:40 PM****(PACRIM8-S07-009-2009) Soft Processing for Ceramics: Single-Step Fabrication of Nano-Structured Ceramics Patterns from Solution without Post-Firing (Invited)**

M. Yoshimura\*, R. Gallage, Tokyo Inst. Tech., Japan; T. Watanabe, Meiji University, Japan; N. Matsushita, Tokyo Inst. Tech., Japan

**5:10 PM****(PACRIM8-S07-010-2009) Comparison of Oxide and Nitride Thin Films – Electrochemical Impedance measurements and Materials Properties**

Y. Liu, C. Qu, R. Miller, D. Edwards, J. Fan, P. Li, E. Pierce, X. Wang\*, Alfred University, USA

**5:30 PM****(PACRIM8-S07-011-2009) Synthesis of nano-size hollow boron nitride spheres by dissolution of amorphous boron nitride cores with H<sub>2</sub>O**

T. Ohashi\*, Y. Wang, Y. Yamamoto, S. Shimada, Hokkaido University, Japan

**Symposium 08: Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Applications****CMCs: Design, Processing & Characterizations**

Room: Oxford

Session Chairs: Laifei Cheng, National Key Laboratory of Thermostructure Composite Materials; Dongming Zhu, NASA Glenn Research Center

**1:20 PM****(PACRIM8-S08-001-2009) Development of Durable Ceramic Matrix Composite Turbine Components for Advanced Propulsion Engine Systems (Invited)**

D. Zhu\*, NASA Glenn Research Center, USA

**1:50 PM****(PACRIM8-S08-002-2009) Fiber Architecture Challenges For Ceramic Composite Turbine Blades**

J. DiCarlo\*, NASA Glenn Research Center, USA

**2:10 PM****(PACRIM8-S08-003-2009) Fiber Architectural Effects on Impact Resistance of Uncoated and Environmental Barrier Coated MI SiC/SiC Composites**

R. Bhatt\*, D. Fox, US Army, USA

**2:30 PM****(PACRIM8-S08-004-2009) Transformation Plasticity in TbPO<sub>4</sub> and (Gd,Dy)PO<sub>4</sub> Orthophosphates: Observations for Indentation of Bulk Material and Pushout of Coated Fibers (Invited)**

R. Hay\*, G. Fair, USAF, USA; E. Boakye, P. Mogilevsky, T. Parthasarathy, UES, Inc., USA; J. Davis, M. Wilson, Wright State U., USA

**3:00 PM**

Break

**3:20 PM****(PACRIM8-S08-005-2009) Damage Evolution and Characterization of Ceramic Matrix Composites (Invited)**

L. Cheng\*, National Key Laboratory of Thermostructure Composite Materials, China

**3:50 PM****(PACRIM8-S08-006-2009) Failure Mechanism Maps of Non-oxide CMCs**

J. Li\*, L. Zhang, L. Cheng, X. Luan, N. Dong, Northwestern Polytechnical University, China

**4:10 PM****(PACRIM8-S08-007-2009) Overview on the self-sealing process in the SiCf/[Si,C,B]m composites under wet atmosphere at high temperature (Invited)**

F. Rebillat\*, X. Martin, E. Garitte, A. Guette, Thermostructural Composites Laboratory, France

**4:40 PM****(PACRIM8-S08-008-2009) Strength of SiC Fibers after Oxidation**

R. Hay\*, G. Fair, Air Force Research Laboratory, USA; E. Urban, U. Dayton, USA; J. Morrow, J. Somerson, U. Cincinnati, USA; M. Wilson, Wright State U., USA

**5:00 PM****(PACRIM8-S08-009-2009) Increasing thermal stability of CMCs reinforced by Nextel 610 fibers**

M. J. Schmucker\*, P. Mechnich, German Aerospace Center (DLR), Germany

**5:20 PM****(PACRIM8-S08-P048-2009) Effects of Residence Time on the Kinetics of Chemical Vapor Deposition of Pyrocarbon from Propylene**

C. Zhao\*, L. Cheng, C. Lu, F. Ye, National Key Laboratory of Thermostructure Composite Materials, China

**Symposium 09: Advanced Ceramic Coatings: Processing, Properties, and Applications****Thermal and Environmental Barrier Coatings**

Room: Prince of Wales

Session Chairs: Yutaka Kagawa, University of Tokyo; Peter Mechnich, German Aerospace Center (DLR)

**1:20 PM****(PACRIM8-S09-001-2009) Processing strategies for optimizing compliance and thermal conductivity of plasma sprayed thermal barrier coatings (Invited)**

S. Sampath\*, State University of New York at Stony Brook, USA

**1:50 PM****(PACRIM8-S09-002-2009) Environmental Stability of the TBC System of an In-service EB-PVD Coated High-pressure Turbine Blade (Invited)**

W. Braue\*, German Aerospace Center (DLR), Germany, German Aerospace Center (DLR), Germany/German Aerospace Center (DLR), Germany

**2:20 PM****(PACRIM8-S09-003-2009) Novel Thermal Barrier Coating Resistant to Attack by CMAS Molten Deposits**

J. Drexler\*, N. Padture, Ohio State University, USA

**2:40 PM****(PACRIM8-S09-004-2009) Effect of Heat Exposure on Delamination Toughness of APS Thermal Barrier Coatings**

Y. Kagawa\*, Y. Liu, N. Y. Cao, R. Kitazawa, University of Tokyo, Japan

**3:00 PM**

Break

**3:20 PM****(PACRIM8-S09-006-2009) Protective UHTC Coatings Consisting of ZrB<sub>2</sub>/SiC and Additional UHTC Phases (Invited)**

Y. Blum\*, SRI International, USA

**3:50 PM****(PACRIM8-S09-007-2009) ZrO<sub>2</sub>-Environmental Barrier Coatings for Oxide/Oxide Ceramic Matrix Composites fabricated by Electron-beam Physical Vapor Deposition**

P. Mechnich\*, W. Braue, German Aerospace Center (DLR), Germany

**4:10 PM****(PACRIM8-S09-008-2009) Nanolaminated oxide ceramic coatings in the Al<sub>2</sub>O<sub>3</sub>-Y<sub>2</sub>O<sub>3</sub> system**

N. K. Eils\*, P. Mechnich, M. Schmuecker, German Aerospace Center (DLR), Germany; I. Schlueter, H. Keune, Technical University of Braunschweig, Germany

**4:30 PM****(PACRIM8-S09-009-2009) From the volatility of simple oxides to that of mixed oxides: Thermodynamic and experimental approaches**

E. Courcot\*, F. Rebillat, F. Teyssandier, Thermostructural Composites Laboratory, France

**4:50 PM****(PACRIM8-S09-010-2009) Thick Thermal Barrier Coatings by Air Plasma Spray (APS) combined with Chemically Bonded Composite Sol-Gel (CB-CSG)**

R. Y. Yao\*, T. Troczynski, H. Kim, UBC, Canada; I. Yaroslavski, A. Burgess, Northwest Mettech, Canada

**5:10 PM****(PACRIM8-S09-011-2009) Water Vapor Corrosion Behaviors of Lu-Si-O System at 1400°C**

Z. Hong\*, L. Cheng, L. Zhang, Y. Wang, National Key Laboratory of Thermostructure Composite Materials, China

**Symposium 12: Microwave Materials and Their Applications****Structure and Properties for Microwave Materials**

Room: Regency B

Session Chairs: Eung Soo Kim, Kyonggi University; Danilo Suvorov, Jozef Stefan Institute

**1:20 PM****(PACRIM8-S12-001-2009) First Principles Broadband Dielectric Spectroscopy (Invited)**

T. Hamada\*, Hitachi Ltd., Japan; T. Ohno, National Institute of Materials Research, Japan; University of Tokyo, Japan

**1:50 PM****(PACRIM8-S12-002-2009) Lattice Vibrations and Microwave Dielectric Performance of Perovskite Ceramics (Invited)**

C. Chia\*, National Taiwan Normal Univ, Taiwan; J. Lee, National Synchrotron Radiation Research Center of Taiwan, Taiwan; L. Lin, Industrial Technology Research Institute, Taiwan; T. Shimada, Hitachi Met Ltd, Japan; H. Ikawa, Kanagawa Institute of Technology, Japan

**2:20 PM****(PACRIM8-S12-003-2009) Far infrared and Raman spectroscopy for examination of the microwave dielectric properties of La(Mg<sub>0.5</sub>Ti<sub>0.5</sub>)O<sub>3</sub> ceramics**

I. Lin\*, H. Hsueh, W. Lee, C. Chia, Tamkang University, Taiwan; H. Liu, National Taiwan Normal U, Taiwan

**2:40 PM****(PACRIM8-S12-004-2009) Effect of oxygen defect on dielectric loss in Ba(Mg<sub>1/3</sub>Ta<sub>2/3</sub>)O<sub>3</sub>**

T. Shimada\*, K. Ichikawa, Hitachi Metals LTD., Japan; G. Annino, CNR, Italy; J. Breeze, N. Alford, Imperial College London, United Kingdom

**3:00 PM**

Break

**3:20 PM****(PACRIM8-S12-005-2009) Subsidiary ternary phase diagram in the BaO-MgO-Ta<sub>2</sub>O<sub>5</sub> system (Invited)**

T. Kolodiazhyi\*, National Institute for Materials Science, Japan

**3:50 PM****(PACRIM8-S12-006-2009) High Symmetry Brings High Q instead of Ordering on BZN by HRTEM Study**

H. Ohsato\*, Nagoya Institute of Technology, Japan; E. Koga, Panasonic Electronic Devices Hokkaido Co. Ltd., Japan; F. Azough, University of Manchester, United Kingdom; I. Kagomiya, K. Kakimoto, Nagoya Institute of Technology, Japan; R. Freer, University of Manchester, United Kingdom

**4:10 PM****(PACRIM8-S12-007-2009) Structure and microwave dielectric properties of Ln<sub>3</sub>/4M<sub>1</sub>/4(Mg<sub>1</sub>/4Ti<sub>3</sub>/4)O<sub>3</sub> (Ln: La, Nd, Sm; M: Li, Na)**

J. J. Bian\*, L. L. Yuan, Shanghai University, China; R. Ubic, Boise State University, USA

**4:30 PM****(PACRIM8-S12-008-2009) Nature of Structural Changes in Ag(Nb,Ta)O<sub>3</sub> Perovskite-Like Dielectrics**

I. Levin\*, V. Krayzman, J. Woicik, NIST, USA; T. Proffen, Los Alamos National Laboratory, USA; M. Tucker, ISIS, Appleton Rutherford Laboratory, United Kingdom; J. Karapetrova, Advanced Photon Source, USA; J. Pokorny, I. Reaney, University of Sheffield, United Kingdom

**4:50 PM****(PACRIM8-S12-009-2009) Structure, Composition and Electrical Properties of ABX<sub>3</sub> Hexagonal Perovskite**

R. Jarkaneh\*, University of Sheffield, United Kingdom

**5:10 PM****(PACRIM8-S12-010-2009) Understanding and improving insertion loss and intermodulation in Microwave ferrite devices (Invited)**

D. B. Cruickshank\*, TransTech, USA

**5:40 PM****(PACRIM8-S12-011-2009) Hysteresis Parameters of Ba<sub>0.5</sub>Sr<sub>0.5</sub>M<sub>x</sub>Fe(12-2x)O<sub>19</sub> (M = Co<sub>2+</sub>-Ru<sub>4+</sub>, Co<sub>2+</sub>-Zr<sub>4+</sub> and Co<sub>2+</sub>-Ti<sub>4+</sub>) Ferrite**

S. Narang\*, GND University, India; C. Singh, Amritsar College of Engg. &amp; Technolgy, India; I. S. Hudiara, KC College of Engg. and IT, India

**Symposium 13: Advanced Thermal Management Materials and Technologies****Advanced Thermal Management Materials and Technologies**

Room: Plaza B

Session Chairs: Andrew Gyekenyesi, Ohio Aerospace Institute; Sunil Dutta, SD Associates

**1:20 PM****(PACRIM8-S13-001-2009) High Conductivity Graphitic Foams for Thermal Management (Invited)**

A. Gyekenyesi\*, M. Singh, Ohio Aerospace Institute, USA; P. Stansberry, GrafTech International Holdings, Inc, USA; M. Alam, Ohio University, USA; D. L. Vrable, Thermal Management &amp; Materials Technology, USA

**1:50 PM****(PACRIM8-S13-002-2009) NDE for Characterizing Oxidation Damage in Cracked Reinforced Carbon-Carbon (Invited)**

D. Roth\*, R. Rauser, N. Jacobson, NASA Glenn Research Center, USA; R. Wincheski, NASA Langley Research Center, USA; J. Walker, NASA Marshall Space Flight Center, USA; L. Cosgriff, R. Martin, NASA Glenn Research Center, USA

**2:20 PM****(PACRIM8-S13-003-2009) Monitoring Delamination Progression in Thermal Barrier Coatings using Mid-Infrared Reflectance Imaging**

R. Martin\*, Cleveland State University, USA; J. Eldridge, NASA, USA

**2:40 PM****(PACRIM8-S13-004-2009) An Approach to Developing Thermal Protection Systems**

S. M. Johnson\*, NASA Ames Research Center, USA

**3:00 PM**

Break

**3:20 PM****(PACRIM8-S13-005-2009) Design of MeC/C Hetero-Modulus Ceramics with Enhanced Damage Tolerance**

I. L. Shabalin\*, Y. Wang, The University of Salford, United Kingdom

**3:40 PM****(PACRIM8-S13-006-2009) Production and Characterization of Highly Porous Carbide for Isotope Separation on-line Facilities**

L. Biasetto\*, University of Padova, Italy; S. M. Carturan, INFN, Italy; P. Zanonato, S. Corradetti, University of Padova, Italy; A. Andrighetto, INFN, Italy; P. Colombo, University of Padova, Italy

**4:00 PM****(PACRIM8-S13-007-2009) Effect of Nanoreinforcements on Structure and Properties of Carbon/Carbon Composites (Invited)**

L. Manocha\*, Sardar Patel University, India

**Symposium 17: Photocatalytic Materials: Reaction, Processing, and Applications****Visible Light Active Photocatalyst**

Room: Regency F

Session Chair: Akira Nakajima, Tokyo Institute of Technology

**1:20 PM****(PACRIM8-S17-001-2009) Novel visible light sensitive photocatalysts based on interfacial electron transfer mechanism (Invited)**

K. Hashimoto\*, Univ. Tokyo, Japan

**1:50 PM****(PACRIM8-S17-002-2009) Photocatalytic property of a meso-substituted trimethine cyanine dye-sensitized layered perovskite**

S. Nishimoto\*, T. Yagi, M. Matsuda, M. Kimura, M. Miyake, Okayama Univ., Japan

**2:10 PM****(PACRIM8-S17-003-2009) Visible-Light-Driven Photocatalysts Based on Tungsten Oxide Nanostructures (Invited)**

M. Miyauchi\*, Z. Zhao, M. Shibuya, National Institute of Advanced Industrial Science and Technology, Japan

**2:40 PM****(PACRIM8-S17-004-2009) Control of Band Gaps in Layered Photocatalytic Oxides**

E. J. Nichols\*, S. T. Mixture, Alfred University, USA

**3:00 PM****Break****Characterization of Photocatalytic Materials**

Room: Regency F

Session Chairs: Toshiya Watanabe, The University of Tokyo; Koichi Awazu, AIST

**3:20 PM****(PACRIM8-S17-005-2009) Characterization of crystallized TiO2 film by post plasma treatment**

T. Watanabe\*, N. Yoshida, Y. Shibayama, The University of Tokyo, Japan; H. Ohsaki, AIST, Japan

**3:40 PM****(PACRIM8-S17-006-2009) Photocatalytic Activity of TiO2 from Different Origins**

S. Jinawath\*, W. Panpa, U. Naknikam, Chulalongkorn University, Thailand

**4:00 PM****(PACRIM8-S17-007-2009) Photocatalytic Activity of Six Tunneled Titanates**

S. B. Sanford, S. T. Mixture, D. Edwards\*, Alfred University, USA

**4:20 PM****(PACRIM8-S17-009-2009) Dependence of Photoinduced Surface Friction Force Variation on UV Intensity and Atmosphere in Polycrystalline Anatase Thin Films (Invited)**

A. Nakajima\*, N. Arimitsu, Tokyo Institute of Technology, Japan; T. Watanabe, The University of Tokyo, Japan; Y. Kameshima, K. Okada, Tokyo Institute of Technology, Japan

**4:50 PM****(PACRIM8-S17-010-2009) Wettability Control of Ceramic Surface; Strategic Approach by Dynamic Wettability Optimization**

T. Watanabe\*, N. Yoshida, The University of Tokyo, Japan

**Symposium 18: Ceramics Enabling Environmental Protection: Clean Air and Water****Novel Materials and Processes Enabling New Products for Environmental Protection I**

Room: Georgia B

Session Chairs: Aleksander Pyzik, The Dow Chemical Company; Irene Peterson, Corning Incorporated

**1:20 PM****(PACRIM8-S18-001-2009) Porous Ceramics for a Better Life**

J. Luyten\*, S. Mullens, F. Sniijkers, A. Buekenhoudt, VITO, Belgium

**1:50 PM****(PACRIM8-S18-002-2009) Thermal Stable Catalytic Alumina Support and Modification Processing for Recent Automotive Exhaust Treatment (Invited)**

M. Ozawa\*, Nagoya Institute of Technology, Japan

**2:20 PM****(PACRIM8-S18-003-2009) Processing of Porous Silicon Carbide Membrane Supports**

J. Eom, Y. Kim\*, University of Seoul, Korea, South; S. Woo, I. Han, Korea Institute of Energy Research, Korea, South

**2:40 PM****(PACRIM8-S18-008-2009) Air atmosphere sintering of porous  $\beta$ -Si<sub>3</sub>N<sub>4</sub> ceramics**

K. P. Plucknett\*, Dalhousie University, Canada

**3:00 PM****Break****3:20 PM****(PACRIM8-S18-005-2009) Microstructure and air permeability in porous silicon nitride and sialon prepared by reaction sintering methode (Invited)**

H. Kim\*, Korea Institute of Materials Science, Korea, South

**3:50 PM****(PACRIM8-S18-006-2009) Combined Microstructural and Compositional Development of Porous  $\beta$ -Si<sub>3</sub>N<sub>4</sub> Ceramics**

K. P. Plucknett\*, D. A. Gould, M. Quinlan, Dalhousie University, Canada; L. B. Garrido, Centro de Tecnología de Recursos Minerales y Cerámica, Argentina; L. A. Genova, CCTM Centro de Ciência e Tecnologia de Materiais, Brazil

**4:20 PM****(PACRIM8-S18-007-2009) High Performance of Exhaust Treatment Using New Generation Composite Ceramic Catalyst: A Project for Environmental Ceramics (Invited)**

M. Ozawa\*, Nagoya Institute of Technology, Japan

**4:50 PM****(PACRIM8-S18-004-2009) Doped Titanium Dioxide Ceramics for Carbon Monoxide Gas Sensor**

S. Bose\*, A. Bandyopadhyay, Z. Seeley, Washington State University, USA

## Symposium 21: Nano-Biotechnology and Ceramics in Biomedical Applications

### Advanced Processing of Bioceramics

Room: Georgia A

Session Chair: Roger Narayan, University of North Carolina

**1:20 PM**

#### (PACRIM8-S21-001-2009) Development of Nanostructured Bioactive Glass Scaffolds for Tissue Engineering

A. R. Boccaccini\*, Imperial College London, United Kingdom

**1:50 PM**

#### (PACRIM8-S21-002-2009) Electrophoretic deposition of bioceramic– biopolymer nanocomposites for biomedical applications (Invited)

I. Zhitomirsky\*, McMaster University, Canada

**2:20 PM**

#### (PACRIM8-S21-003-2009) Calcium phosphate nanocarriers for controlled release of protein and bone tissue engineering (Invited)

S. Bose\*, Washington State University, USA

**2:50 PM**

Break

**3:10 PM**

#### (PACRIM8-S21-004-2009) A Role for Electrochemical Synthesis in Bioceramic Composite Materials (Invited)

M. Kumar, H. R. Baker, E. F. Merschrod S., K. M. Poduska\*, Memorial University of Newfoundland, Canada

**3:40 PM**

#### (PACRIM8-S21-005-2009) Freeze casting of porous biomaterial scaffolds for bone tissue engineering (Invited)

K. K. Mallick\*, University of Warwick, United Kingdom

**4:10 PM**

#### (PACRIM8-S21-006-2009) Polarized Hydroxyapatite Ceramics - Role of Surface Charge, Wettability and Dopants on Osteoconduction (Invited)

A. Bandyopadhyay\*, S. Bodhak, S. Bose, Washington State University, USA

**4:40 PM**

#### (PACRIM8-S21-007-2009) Freeform Fabrications and Structural Controls of Alumina Dental-Crown Models by Using Stereolithography

M. Suwa\*, S. Kirihara, T. Sohmura, Osaka University, Japan

**5:00 PM**

#### (PACRIM8-S21-008-2009) Fabrication of Microstructured Medical Devices

S. D. Gittard, A. Doraiswamy, R. J. Narayan\*, University of North Carolina, USA; A. Ovsianikov, B. N. Chichkov, Laser Zentrum Hannover, Germany

**5:20 PM**

#### (PACRIM8-S21-009-2009) Microwave-Assisted Synthesis and Characterization of Biphasic Calcium Phosphate Nanopowders

A. Farzadi, M. Solati-Hashjin, Z. Tahmasebi-Birgani, A. Aminian\*, Amirkabir University of Technology-Tehran Polytechnic, Iran

## Symposium 27: International Fulrath Symposium on “New Frontiers of Ceramics for Sustainable Society”: In Honor of Prof. Noboru Ichinose and Prof. Richard C. Bradt

### International Fulrath Symposium I

Room: Regency E

Session Chairs: M. Singh, Ohio Aerospace Institute; Koichi Niihara, EDI

**1:20 PM**

#### (PACRIM8-S27-001-2009) Microhardness Anisotropy and the Indentation Size Effect on the (001) of Magnesium Fluoride (MgF<sub>2</sub>) (Invited)

I. Zhang, S. Tsui, R. C. Bradt\*, The University of Alabama, USA

**1:50 PM**

#### (PACRIM8-S27-002-2009) Seeding of Ceramic Phase Formation Revisited (Invited)

G. Messing\*, Penn State University, USA

**2:20 PM**

#### (PACRIM8-S27-003-2009) Design of Size and Interconnections of Novel Complex Oxide Powders

S. Wada\*, A. Nozawa, S. Kondo, T. Goto, University of Yamanashi, Japan

**2:40 PM**

#### (PACRIM8-S27-004-2009) Laser Patterning of Highly Oriented Functional Crystal Lines in Glass

T. Komatsu\*, T. Honma, Nagaoka University of Technology, Japan

**3:00 PM**

Break

**3:20 PM**

#### (PACRIM8-S27-005-2009) New Nanocomposite Materials with Multi Functionality (Invited)

K. Niihara\*, T. Nakayama, H. Suematsu, Nagaoka University of Technology, Japan

**3:50 PM**

#### (PACRIM8-S27-006-2009) Complete oxidation of volatile organic compounds (VOCs) at moderate temperatures over Pt/Ce-Zr-Bi-O/gamma -Al<sub>2</sub>O<sub>3</sub> catalysts (Invited)

N. Imanaka\*, Osaka University, Japan

**4:20 PM**

#### (PACRIM8-S27-007-2009) Dielectric and Electromechanical Properties of BaTiO<sub>3</sub> Ceramics Prepared by Spark Plasma Sintering

H. Maiwa\*, Shonan Institute of Technology, Japan

**4:40 PM**

#### (PACRIM8-S27-008-2009) Chemical and Biomedical Surface Functions of Bioceramic Electrets

K. Yamashita\*, Tokyo Medical & Dental University, Japan

**5:00 PM**

#### (PACRIM8-S27-009-2009) First Streamer Electric Discharge using the Nanosec Pulsed High-Voltage Generator for Nanoprocessing

T. Nakayama\*, T. Yokoo, S. Inokuchi, W. Jiang, H. Suematsu, T. Suzuki, K. Niihara, Nagaoka University of Technology, Japan

**5:20 PM**

#### (PACRIM8-S27-010-2009) Oxynitrides as new functional ceramic materials

S. Kikkawa\*, T. Motohashi, Y. Masubuchi, Hokkaido University, Japan



## Tuesday, June 2, 2009

**Symposium 01: Design, Modeling, and Simulation of Ceramic Interfaces****The Role of Interfaces and Grain Boundaries in Mechanical Behavior**

Room: English Bay

Session Chairs: Martha Mecartney, University of California, Irvine; Jian Luo, Clemson University

**8:30 AM****(PACRIM8-S01-001-2009) Atomistic simulations of grain boundaries in SiC: structure, energy, and the effect on mechanical properties (Invited)**

I. Szlufarska\*, M. Wojdyr, Y. Mo, University of Wisconsin, USA

**9:00 AM****(PACRIM8-S01-002-2009) Atomistic Simulation of Nano-Ceramic Coatings on Iron Steel substrate**

J. Fan\*, Alfred University, USA

**9:20 AM****(PACRIM8-S01-003-2009) Nanoindentation-induced phase transformation in silicon carbide: Effects of tip size and roughness**

M. Mishra\*, I. Szlufarska, UW Madison, USA

**9:40 AM****Break****10:00 AM****(PACRIM8-S01-004-2009) Computational and Experimental Multiscale Investigations of Thermo-Mechanical Strength and Fracture Resistance in High Temperature Ceramic Nanocomposites (Invited)**

V. Tomar\*, University of Notre Dame, USA

**10:30 AM****(PACRIM8-S01-005-2009) Grain Boundary Induced Stresses in Nanocrystalline Ceramic Coatings and Thin Films (Invited)**

B. W. Sheldon\*, Brown University, USA

**The Role of Grain Boundaries in Transparency**

Room: English Bay

Session Chairs: Martha Mecartney, University of California, Irvine; Jian Luo, Clemson University

**11:00 AM****(PACRIM8-S01-006-2009) Relationship between Transparency and Texturing in Alumina Ceramics: Theoretical Model and New Fabrication Route (Invited)**

C. Pecharroman\*, G. Mata-Osoro, J. S. Moya, ICMM-CSIC, Spain; L. A. Diaz, R. Torrecillas, CINN-CSIC, Spain

**11:30 AM****(PACRIM8-S01-007-2009) Scattering Defects in YAG Ceramics**

A. J. Stevenson\*, E. R. Kupp, S. Lee, G. L. Messing, Pennsylvania State University, USA

**Symposium 04: Polymer Derived Ceramics and Composites****Polymer-Derived-Ceramic Fibers I**

Room: Plaza A

Session Chair: Yuji Iwamoto, Nagoya Institute of Technology

**8:30 AM****(PACRIM8-S04-013-2009) Refractory fibers and fiber coatings for advanced composites (Invited)**

R. Gadow\*, IFKB, University of Stuttgart, Germany

**9:00 AM****(PACRIM8-S04-014-2009) Design and characterization of novel SiBCN preceramic polymers as potential candidates for a new generation of SiBCN ceramic fibers**

L. Gottardo\*, S. Bernard, A. Brioude, P. Miele, Université Claude Bernard Lyon 1, France

**9:20 AM****(PACRIM8-S04-015-2009) One-pot synthesis of novel polyborosilazane to SiBNC fibres**

Y. Tang, J. Wang\*, X. Li, Y. Wang, State Key Lab of Advanced Ceramic Fiber &amp; Composites, China

**9:40 AM****Break****Polymer-Derived-Ceramic Fibers II**

Room: Plaza A

Session Chair: Rishi Raj, University of Colorado-Boulder

**10:00 AM****(PACRIM8-S04-016-2009) Polymer derived ceramic fiber types (Invited)**

D. Sporn\*, J. Clade, R. Krueger, A. Ruedinger, Fraunhofer-Institut fuer Silicatforschung, Germany

**10:30 AM****(PACRIM8-S04-017-2009) Evaluation of heat stability of Si-O-C fibers derived from polymethylsilsesquioxane**

M. Narisawa\*, R. Sumimoto, K. Kita, Y. Satoh, H. Kado, H. Mabuchi, Osaka Prefecture University, Japan; M. Sugimoto, Japan Atomic Energy Agency, Japan; M. Yoshikawa, Japan Atomic Energy Agency, Japan; Y. Kim, The University of Seoul, Korea, South

**10:50 AM****(PACRIM8-S04-018-2009) Ceramic SiCN Fibers: Processing and Properties (Invited)**

M. Guenter\*, S. Wenderoth, W. Krenkel, University of Bayreuth, Germany; D. Koch, University of Bremen, Germany

**11:20 AM****(PACRIM8-S04-019-2009) Intermediate-range order in polymer-route Si-C-O fibers by high-energy X-ray diffraction and reverse Monte Carlo modelling**

K. Suzuya\*, Japan Atomic Energy Agency, Japan; S. Kohara, Japan Synchrotron Radiation Research Institute, Japan; K. Okamura, Japan Ultra-high Temperature Materials Research Center, Japan; H. Ichikawa, Nippon Carbon Co., Ltd., Japan; K. Suzuki, Advanced Institute of Materials Science, Japan

**11:40 AM****(PACRIM8-S04-020-2009) Investigation of nano porous SiC based fibers synthesized by precursor method**

K. Kita\*, M. Narisawa, H. Mabuchi, Osaka Prefecture University, Japan; M. Itoh, Fukushima National College of Technology, Japan; M. Sugimoto, M. Yoshikawa, Japan Atomic Energy Agency, Japan

## Symposium 05: Advanced Powder Processing and Manufacturing Technologies

### Powder Synthesis IV

Room: Plaza C

Session Chair: Toru Wakihara, Yokohama National University

**8:30 AM**

**(PACRIM8-S05-011-2009) Novel Synthesis Routes for Engineering Nanoparticles and their Dispersion Controls (Invited)**

J. Noma, T. Fukui\*, H. Abe, S. Ohara, Kurimoto, Ltd., Japan

**9:00 AM**

**(PACRIM8-S05-012-2009) Study of Preparation of Blue V-zircon Pigment by Using Zircon and Sulphuric Acid**

M. Riahi, M. Faghihisani\*, Sharif University of Technology, Iran

**9:20 AM**

**(PACRIM8-S05-013-2009) Nanocoating Fe<sub>2</sub>O<sub>3</sub> powders with a Homogeneous thin ZrO<sub>2</sub> Shell**

F. Zhao, Graduate University of Chinese Academy of Sciences, China; Y. Gao\*, H. Luo, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China

**9:40 AM**

Break

### Powder Synthesis V and Porous Ceramics I

Room: Plaza C

Session Chairs: Takehisa Fukui, Kurimoto, Ltd.; Takashi Shirai, Nagoya Institute of Technology

**10:00 AM**

**(PACRIM8-S05-014-2009) Modification of Deagglomeration State during the Synthesis of Al<sub>2</sub>O<sub>3</sub> - (20 vol. %) ZrO<sub>2</sub> Nanocrystalline Powders (Invited)**

H. Gocmez\*, M. Tuncer, Z. Gokyer, I. Uzulmez, Dumlupinar University, Turkey

**10:30 AM**

**(PACRIM8-S05-015-2009) Manufacturing Nano-Y<sub>2</sub>O<sub>3</sub> Ceramics, Characterization and Properties**

K. Serivalsatit\*, B. Y. Kokuoz, K. Serivalsatit, E. McCormick, J. Ballato, Center for Optical Materials Science and Engineering Technologies (COMSET), USA

**10:50 AM**

**(PACRIM8-S05-016-2009) Characterisation of treated Vanadium oxide powders**

R. R. Tallapragada\*, M. K. Trivedi, Society for Divine Life, India

**11:10 AM**

**(PACRIM8-S05-017-2009) Effect of Precipitators on Formation Process of La<sub>2</sub>Zr<sub>2</sub>O<sub>7</sub> Powder by Chemical Coprecipitation Method**

W. Jing\*, B. Shuxin, Z. Changrui, National University of Defence Technology, China

**11:30 AM**

**(PACRIM8-S05-020-2009) Structural and Electrical Characterization of Polycrystalline Copper Selenide Synthesis by Chemical Precipitation Method**

Z. A. Talib\*, J. C. Liew, Z. Zainal, W. M. Yunus, A. Shaari, M. Moksini, Universiti Putra Malaysia, Malaysia

## Symposium 07: Nanostructured Materials and Systems

### Hybrid Nanomaterials and Nano-reinforced Composites

Room: Balmoral

Session Chair: Enrico Traversa, Univ. Roma Tor Vergata

**8:30 AM**

**(PACRIM8-S07-012-2009) Chemically Designed Nanoparticles, Nanowires and Nanocomposites: Processing, Applications and Devices (Invited)**

S. Mathur\*, University of Cologne, Germany

**9:00 AM**

**(PACRIM8-S07-013-2009) Novel Functional Nanoparticles and Surfaces based on Metal Atom Clusters**

T. Aubert\*, F. Grasset, S. Cordier, F. Dorson, Y. Molard, C. Perrin, University of Rennes 1, France; H. Haneda, National Institute for Material Science, Japan

**9:20 AM**

**(PACRIM8-S07-014-2009) Luminescence and amplified stimulated emission of CdSe@ZnS quantum dots doped TiO<sub>2</sub> and ZrO<sub>2</sub> waveguides**

A. Martucci\*, Università di Padova, Italy; J. Jack, M. Paul, Melbourne University, Australia; S. Raffaella, Università di Padova, Italy

**9:40 AM**

Break

**10:00 AM**

**(PACRIM8-S07-015-2009) Macromolecular Nanotechnology: Nanocomposites (Invited)**

S. Ray\*, National Centre for Nano-Structured Materials, South Africa

**10:30 AM**

**(PACRIM8-S07-016-2009) Plasmon assisted nano-patterning of organic-inorganic hybrid materials**

H. Segawa\*, T. Yano, S. Shibata, Tokyo Institute of Technology, Japan

**10:50 AM**

**(PACRIM8-S07-017-2009) Patterned TiO<sub>2</sub>-Ag-ZnO Heterojunctions for Catalytic Applications (Invited)**

M. Es-Souni\*, University of Applied Sciences of Kiel, Germany

**11:20 AM**

**(PACRIM8-S07-018-2009) Interface effects on the enhanced oxide ion conductivity at (Y<sub>2</sub>O<sub>3</sub>)<sub>x</sub>(ZrO<sub>2</sub>)<sub>1-x</sub> ultrathin films**

J. Garcia-Barriocanal, A. Rivera-Calzada, Universidad Complutense Madrid, Spain; M. Varela, Oak Ridge National Laboratory, USA; Z. Sefrioui, Universidad Complutense Madrid, Spain; E. Iborra, Universidad Politécnica de Madrid, Spain; C. Leon\*, Universidad Complutense Madrid, Spain; S. Pennycook, Oak Ridge National Laboratory, USA; J. Santamaría, Universidad Complutense Madrid, Spain

**11:40 AM**

**(PACRIM8-S07-019-2009) Synthesis of Nano Alumina -Aluminum Composite and its Corrosion Resistance Properties**

I. Singh\*, M. Singh, S. Das, Advanced Materials and Processes Research Institute, India

## Symposium 08: Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Applications

### Processing-Microstructure-Mechanical Properties

Room: Oxford

Session Chairs: Sylvia Johnson, NASA Ames Research Center; Yu Zhou, Harbin Institute of Technology

**8:30 AM**

**(PACRIM8-S08-010-2009) Microstructure tailoring in Diboride-Based Ultra-High Temperature Ceramics with Improved Properties (Invited)**

G. Zhang\*, Shanghai Institute of Ceramics, China

**9:00 AM**

**(PACRIM8-S08-011-2009) Influencing Microstructure And Properties Of Ultra High Temperature Ceramics Through Additives And Processing**

S. M. Johnson\*, M. Gasch, NASA Ames Research Center, USA; M. Stackpoole, M. Gusman, ELORET Corporation, USA

**9:20 AM**

**(PACRIM8-S08-012-2009) Microstructure characteristics and high-temperature performance of in-situ reinforced  $\alpha$ -SiAlON ceramics (Invited)**

Y. Zhou\*, F. Ye, Harbin Institute of Technology, China

**9:50 AM**

Break

**10:00 AM**

**(PACRIM8-S08-013-2009) Effect of the Microstructure on the Electrical Resistivity of Al<sub>2</sub>O<sub>3</sub>-MoSi<sub>2</sub> Composites (Invited)**

U. F. Vogt\*, M. Prestat, M. Bloemker, H. J. Schindler, T. Graule, EMPA, Switzerland; S. Koebel, Metoxit, AG, Switzerland; J. F. Koenig, EMPA, Switzerland

**10:30 AM**

**(PACRIM8-S08-014-2009) Challenges for MAX phases**

Y. Zhou\*, Institute of Metal Research, China

**10:50 AM**

**(PACRIM8-S08-015-2009) In Situ Synthesis and Properties of Ti<sub>3</sub>Si(AI)<sub>2</sub>/Ti<sub>5</sub>Si<sub>3</sub> Composites**

J. Chen\*, Y. Liu, Y. Zhou, Institute of Metal Research, Chinese Academy of Sciences, China

**11:10 AM**

**(PACRIM8-S08-016-2009) Debinding of Nonoxide Ceramics under Protective Atmosphere (Invited)**

D. G. Brunner\*, ANCCeram GmbH & Co.KG, Germany; F. Raether, A. Klimera, Fraunhofer Gesellschaft, Germany; G. Boehm, ANCCeram GmbH & Co.KG, Germany

## Symposium 09: Advanced Ceramic Coatings: Processing, Properties, and Applications

### Diamond-like Carbon Coatings

Room: Prince of Wales

Session Chairs: Yoshinori Koga, Advanced Industrial Science and Technology; Hirofumi Takikawa, Toyohashi University of Technology

**8:30 AM**

**(PACRIM8-S09-012-2009) Review of DLC Film Coatings Makers and Market in Japan (Invited)**

Y. Koga\*, M. Hasegawa, M. Ishihara, J. Kim, K. Tsugawa, Advanced Industrial Science and Technology, Japan

**9:00 AM**

**(PACRIM8-S09-013-2009) DLC Thin Film Preparation by T-shape Filtered Arc Deposition System (Invited)**

H. Takikawa\*, Toyohashi University of Technology, Japan

**9:30 AM**

Break

**9:50 AM**

**(PACRIM8-S09-014-2009) Highly Hard and Conductive DLC Film Formation Technologies and Industrial Application (Invited)**

Y. Suzuki\*, Plasma Ion Assist Co., Ltd., Japan

**10:20 AM**

**(PACRIM8-S09-015-2009) Diamond-like carbon films synthesized under atmospheric pressure (Invited)**

T. Suzuki\*, Keio University, Japan

**10:50 AM**

**(PACRIM8-S09-016-2009) The Annealing Effect on the Tribology of Fullerene-like DLC Films (Invited)**

J. Zhang\*, State Key Laboratory of Solid Lubrication, China

**11:20 AM**

**(PACRIM8-S09-017-2009) Low temperature nano-diamond coatings**

M. Hasegawa\*, K. Tsugawa, M. Ishihara, J. Kim, Y. Koga, AIST, Japan

**11:40 AM**

**(PACRIM8-S09-018-2009) DLC film coatings on scaffold for tissue engineering**

Y. Ohgoe\*, H. Matsuo, K. K. Hirakuri, A. Funakubo, Y. Fukui, Tokyo Denki University, Japan

## Symposium 11: Advances in Electroceramics

### Processing of Electroceramic Films

Room: Regency A

Session Chair: Yong Cho, Yonsei University

**8:30 AM**

**(PACRIM8-S11-001-2009) Stress Induced Giant Piezoelectricity of CSD-derived PZT Thin Films**

H. Suzuki\*, Y. Matsubayashi, N. Wakiya, N. Sakamoto, Shizuoka University, Japan

**8:50 AM**

**(PACRIM8-S11-002-2009) Pulsed Laser Crystallization of Electroceramic Films (Invited)**

S. Trolrier-McKinstry, S. Bharadwaja\*, J. Kulik, Penn State, USA; H. Beratan, D. Arbutnot, L3 Communications, USA

**9:20 AM**

**(PACRIM8-S11-003-2009) Electroluminescence from Pr-activated (CaSr)TiO<sub>3</sub> perovskite oxide epitaxial film phosphors**

H. Takashima\*, National Institute of Advanced Industrial Science and Technology, Japan; K. Ueda, Kyushu Institute of Technology, Japan; Y. Inaguma, Gakushuin University, Japan; N. Miura, Meiji University, Japan; M. Itoh, Tokyo Institute of Technology, Japan

**9:40 AM**

Break

**10:00 AM**

**(PACRIM8-S11-004-2009) Bottom-Up Fabrication of High-k Dielectric Nanofilms using Oxide Nanosheets**

M. Osada\*, T. Sasaki, National Institute for Materials Science, Japan

**10:20 AM**

**(PACRIM8-S11-005-2009) Low Temperature Processing of Piezoelectric Thick Films by Designing of Powder Morphology and Composition**

M. Kosec, J. Holc, D. Ku<l>q><k-80><k0>s<l>q><k-80><k0>cer Hrvatin\*, Jo[#382#]ef Stefan Institute, Slovenia, Jo[#382#]ef Stefan Institute, SloveniaJozef Stefan Institute, Slovenia

**10:40 AM****(PACRIM8-S11-006-2009) Phase and Interface Development in Continuous and Patterned PZT Thin Films**

G. L. Brennecke\*, C. M. Parish, Sandia National Labs, USA; J. L. Jones, University of Florida, USA; D. M. Marincel, Missouri University of Science and Technology, USA; B. A. Tuttle, Sandia National Labs, USA

**11:00 AM****(PACRIM8-S11-007-2009) Perovskite films by alkoxide based sol-gel processing**

G. Westin\*, K. Lashgari, A. Pohl, Uppsala University, Sweden; K. Jansson, Stockholm University, Sweden

**11:20 AM****(PACRIM8-S11-008-2009) Preparation and Characteristics of Dielectric Films by Plasma Assisted Aerosol Deposition Method**

M. Mori\*, N. Akita, Y. Murase, Ryukoku University, Japan; B. So, J. Akedo, AIST, Japan

**11:40 AM****(PACRIM8-S11-009-2009) Control of the epitaxial and polycrystalline growth of oxide films by excimer laser assisted metal organic deposition**

T. Tsuchiya\*, T. Nakajima, T. Kumagai, National Inst. of Advanced Industrial Science and Technology(AIST), Japan

**Symposium 12: Microwave Materials and Their Applications****Low-temperature Co-fired Ceramics(LTCC)**

Room: Regency B

Session Chairs: Heli Jantunen, Oulu University; Dennis Hsi, National United University

**8:30 AM****(PACRIM8-S12-012-2009) Improvement of Q Value at Microwave Frequencies in Low-fire Bi2O3-CaO-Nb2O5 Ceramics (Invited)**

H. Kagata\*, R. Saito, H. Katsumura, Corporate Components Development Center, Panasonic Electronic Devices, Japan

**9:00 AM****(PACRIM8-S12-013-2009) Mid-high K LTCC Dielectrics for Passive Integration (Invited)**

H. Wang\*, Xi'an Jiaotong University, China

**9:30 AM****(PACRIM8-S12-014-2009) Liquid Phase Assisted Sintering of Cu-Electroded BaTi4O9 Low Temperature Cofired Ceramics with Ba-Si-B-Zn-O Glasses**

C. Chou\*, P. Wu, W. Liao, National Taiwan University of Science and Technology, Taiwan; L. Chu, Walsin Technology Corporation, Taiwan; C. Chen, Hwa-Hsia Institute of Technology, Taiwan

**9:50 AM****Break****10:10 AM****(PACRIM8-S12-015-2009) Tunable microwave phase shifters using LTCC technology with integrated BST thick films**

V. K. Palukuru\*, J. Peräntie, J. Jäntti, H. Jantunen, University of Oulu, Finland

**10:30 AM****(PACRIM8-S12-016-2009) Microwave Dielectric Properties of Zn2SiO4 Ceramics (Invited)**

S. Nahm\*, Korea University, Korea, South

**11:00 AM****(PACRIM8-S12-017-2009) Low-temperature sintering and microwave dielectric properties of ZnO,V2O5 co-doped ZnNb2O6 ceramics**

Z. Yue\*, J. Wang, J. Yan, L. Li, Tsinghua University, China

**11:20 AM****(PACRIM8-S12-018-2009) Microwave properties and crystallization of diopside with TiO2**

T. Hu\*, University of Oulu, Finland; E. S. Kim, Kyonggi University, Korea, South; H. Jantunen, University of Oulu, Finland

**Symposium 17: Photocatalytic Materials: Reaction, Processing, and Applications****Applications of Photocatalytic Reaction and Modified TiO2 Photocatalyst**

Room: Regency F

Session Chairs: Ming-Show Wong, National Dong Hwa University; Masahiro Miyauchi, National Institute of Advanced Industrial Science and Technology

**8:30 AM****(PACRIM8-S17-011-2009) Photocatalytic Products: A Critical Review (Invited)**

S. Hay\*, United Technologies Research Center, USA

**9:00 AM****(PACRIM8-S17-012-2009) Nano- and Microroughness of Titania Coatings on Glass**

M. Piispänen\*, L. Hupa, Åbo Akademi University, Finland

**9:20 AM****(PACRIM8-S17-013-2009) A Plasmonic photocatalyst of silver nanoparticles embedded in TiO2 (Invited)**

K. Awazu\*, J. Tominaga, M. Fujimaki, AIST, Japan; A. Maeda, Y. Ohki, Waseda, Japan; C. Rockstuhl, Friedrich Schiller University Jena, Germany; N. Yoshida, T. Watanabe, The University of Tokyo, Japan

**9:50 AM****(PACRIM8-S17-014-2009) Solution processing and properties of complex nano-structured semiconductor oxides**

G. Westin\*, M. Leideborg, K. Lashgari, Uppsala University, Sweden; K. Jansson, Stockholm University, Sweden

**10:10 AM****(PACRIM8-S17-015-2009) Preferential photodegradation of contaminants by molecular imprinting on a photocatalytic substrate (Invited)**

Y. Paz\*, Technion, Israel

**Thin Film Photocatalyst**

Room: Regency F

Session Chairs: Yaron Paz, Technion; Toshiya Watanabe, The University of Tokyo

**10:40 AM****(PACRIM8-S17-016-2009) Carbon-containing titania thin film photocatalysts by reactive vapor deposition (Invited)**

M. Wong\*, National Dong Hua University, Taiwan

**11:10 AM****(PACRIM8-S17-017-2009) TiO2 Wet Coating of Ceramic Foams for Photocatalytic Activated Water Purification**

U. F. Vogt\*, EMPA, Switzerland; T. Mancino, University of Padova, Italy; M. Gorbar, EMPA, Switzerland; G. Plesch, Comenius University, Slovakia; P. Colombo, University of Padova, Italy

**11:30 AM****(PACRIM8-S17-018-2009) Synthesis and Photocatalytic Properties of Reactive Cu/N Co-doped Anatase Nano-powder**

B. A. Apgar\*, R. K. Bordia, University of Washington, USA

**11:50 AM****(PACRIM8-S17-019-2009) Adsorption and Photo-transformation of Organic Compounds at the TiO2 Surface: In Situ ATR – FTIR Studies (Invited)**

D. W. Bahnemann\*, Leibniz Universitaet Hannover, Germany

## Symposium 18: Ceramics Enabling Environmental Protection: Clean Air and Water

### Novel Materials and Processes Enabling New Products for Environmental Protection II

Room: Georgia B

Session Chairs: Hai-Doo Kim, Korea Institute of Materials Science; Kevin Plucknett, Dalhousie University

**8:30 AM**

#### (PACRIM8-S18-009-2009) Oxygen Storage Capacity of CeO<sub>2</sub>-ZrO<sub>2</sub> Nanoparticles Prepared by a Novel Precipitation Process (Invited)

M. Ozawa\*, K. Kimura, A. Sakamoto, Nagoya Institute of Technology, Japan

**9:00 AM**

#### (PACRIM8-S18-010-2009) Porous SiC Fabricated from Luffa Cylindrica and Its Application as Ni-catalyst Supports

Y. Lin\*, Tatung University, Taiwan; S. Chien, Academia Sinica, Taiwan

**9:20 AM**

#### (PACRIM8-S18-011-2009) High Porosity Acicular Mullite Ceramics for Multifunctional Diesel Particulate Filters

A. J. Pyzik\*, C. Han, R. Ziebarth, The Dow Chemical Company, USA

**9:50 AM**

#### (PACRIM8-S18-012-2009) Synthesis of ammonium aluminum-gallium carbonate hydroxide solid solutions as precursors for alumina-gallia solid solutions

M. Inoue\*, T. Masuda, Kyoto University, Japan; T. Watanabe, The Kansai Electric Power Company, Inc., Japan; S. Hosokawa, H. Jeon, H. Kanai, Kyoto University, Japan

**10:20 AM**

Break

## Symposium 21: Nano-Biotechnology and Ceramics in Biomedical Applications

### Characterization of Bioceramics

Room: Georgia A

Session Chairs: Delbert Day, Missouri University of Science and Technology; Akiyoshi Osaka, Okayama University

**8:30 AM**

#### (PACRIM8-S21-010-2009) Bioactive Calcium Phosphates and Nanocomposite Scaffolds for Bone Tissue Engineering (Invited)

M. Wang\*, The University of Hong Kong, China

**9:00 AM**

#### (PACRIM8-S21-015-2009) Use of Atomic Force Microscopy to Study Cell Adhesion on Glass

S. Wiederhorn\*, C. Simon, National Institute of Standards and Technology, USA; Y. Chae, Kyungpook National University, Korea, South; D. Day, University of Missouri-Rolla, USA

**9:20 AM**

#### (PACRIM8-S21-012-2009) Three Dimensional Scaffolds made from Bioactive Glass Fibers

D. Day\*, S. B. Jung, Missouri University of Science and Technology, USA

**9:40 AM**

Break

**10:00 AM**

#### (PACRIM8-S21-013-2009) Immobilization of Heparin on Gelatin Modified three-dimensional Osteoconductive Ca-P/PHBV Nanocomposite Scaffolds

B. Duan, M. Wang\*, The University of Hong Kong, China

**10:20 AM**

#### (PACRIM8-S21-014-2009) Comparison of reactions of bioactive glasses in different aqueous solutions

S. Fagerlund\*, L. Hupa, M. Hupa, Process Chemistry Centre, Åbo Akademi University, Finland

**10:40 AM**

#### (PACRIM8-S21-011-2009) Organic-inorganic hybrid scaffolds for cell culture and tissue regeneration

Y. Shirosaki, K. Tsuru, S. Hayakawa, A. Osaka\*, K. Kataoka, K. Deguchi, H. Zhang, N. Hu, K. Abe, Okayama University, Japan

**11:00 AM**

#### (PACRIM8-S21-016-2009) Engineered composite materials for improved cellular response: Ceria-loaded PLGA films

C. Mandoli, F. Pagliari, S. Pagliari, G. Forte, P. Di Nardo, Univ. Roma Tor Vergata, Italy; E. Traversa\*, National Institute for Materials Science (NIMS), Japan

**11:20 AM**

#### (PACRIM8-S21-017-2009) Rare-Earth Doped Ceramic Nanophosphor (RED-CNP) for NIR Bioimaging

K. Soga\*, K. Tokuzen, Y. Okumura, N. Venkatachalam, Tokyo Univ. of Science, Japan; M. Kamimura, Y. Nagasaki, Univ. of Tsukuba, Japan

## Symposium 23: Glass Science

### Structural Basis of Glass Properties I

Room: Grouse

Session Chair: Adrian Wright, University of Reading

**8:40 AM**

#### (PACRIM8-S23-001-2009) Composition Dependence of Glass Transition Temperature and Fragility: A Topological Model

J. C. Mauro\*, Corning Incorporated, USA; P. K. Gupta, Ohio State University, USA; R. J. Loucks, Alfred University, USA

**9:00 AM**

#### (PACRIM8-S23-002-2009) First sharp diffraction peaks in the structure factors of Te-Cl glasses

D. Le Coq\*, E. Bychkov, University of Littoral, France

**9:20 AM**

#### (PACRIM8-S23-003-2009) Advancing the Vibrational Spectroscopy of Silicate Glasses

R. Haworth\*, G. Mountjoy, University of Kent, United Kingdom

**9:40 AM**

Break

**10:00 AM**

#### (PACRIM8-S23-004-2009) IR absorption edge of multicomponent silicate glasses

M. Anne, L. Glebova, J. Lumeau\*, L. Glebov, UCF, USA

**10:20 AM**

#### (PACRIM8-S23-005-2009) Simulations of the structure around Er ions in silica glasses

H. Inoue\*, A. Masuno, The University of Tokyo, Japan; Y. Saito, Sumitomo Electric Industries, LTD, Japan

**10:40 AM**

#### (PACRIM8-S23-006-2009) Local structure and photoelasticity in tin and antimony glasses

V. Martin\*, S. Thomas, J. W. Zwanziger, R. A. Dunlap, Dalhousie University, Canada

**11:00 AM**

#### (PACRIM8-S23-008-2009) Poisson's Ratio and the Atomic Network Topology - Relevance to High Pressure Densification and Indentation Cracking Behavior of Glass

H. Ji, T. Rouxel\*, V. Keryvin, B. Truffin, Université de Rennes 1, France; T. Hammouda, Université de Clermont-Ferrand, France

**11:20 AM****(PACRIM8-S23-007-2009) Molecular dynamics simulation of time-dependent mechanical properties in SiO<sub>2</sub> and Na<sub>2</sub>O-SiO<sub>2</sub> glasses**

A. Takada\*, Asahi Glass Co. Ltd., Japan

**11:40 AM****(PACRIM8-S23-009-2009) Residual Stress and Cracking in Glass**

S. Ito\*, A. Koike, T. Taniguchi, Research Center, AGC, Japan

## Symposium 24: Glass Technology, Energy and Environment

### Mechanical Properties of Glass and Glass-ceramic

Room: Stanley

Session Chair: Jean-Christophe Sangleboeuf, Université de Rennes 1- LARMAUR EA410

**8:30 AM****(PACRIM8-S24-001-2009) Effects of the Indenter Shape on the Indentation-induced Densification of Soda-lime Glass (Invited)**

S. Yoshida\*, H. Sawasato, T. Sugawara, Y. Miura, J. Matsuoka, University of Shiga Prefecture, Japan

**9:00 AM****(PACRIM8-S24-002-2009) Near Surface Mechanical Properties of Mixed Alkaline Earth Silicate Glasses**

D. R. Tadjiev\*, Sheffield University, United Kingdom; R. J. Hand, Sheffield University, United Kingdom

**9:20 AM****(PACRIM8-S24-003-2009) A chemical probe for measuring glass densification under sharp contact**

J. Guin\*, Y. Niu, T. Rouxel, LARMAUR EA 410 Université de Rennes 1, France; A. Abdelouas, Subatech UMR 6457 IN2P3/CNRS, Ecole des mines de Nantes, France

**9:40 AM****Break****10:00 AM****(PACRIM8-S24-004-2009) Evaluation of fracture toughness of metaphosphate glasses using crack opening displacement approach**

N. Janakiraman\*, J. Deubener, Technische Universität Clausthal, Germany

**10:20 AM****(PACRIM8-S24-005-2009) Use of Atomic Force Microscopy to Study Crack Tips in Glass**

S. Wiederhorn\*, National Institute of Standards and Technology, USA; J. Guin, University of Rennes 1, France

**10:40 AM****(PACRIM8-S24-006-2009) Fictive temperature measurement of fracture surface of silica glass**

M. Tomozawa\*, C. Li, Rensselaer Polytechnic Institute, USA; T. M. Gross, Corning, Inc., USA

**11:00 AM****(PACRIM8-S24-007-2009) Influence of indenter geometry on densification and cracking behaviour during scratching of window glass**

J. Sangleboeuf\*, K. Kese, J. Guin, Université de Rennes 1- LARMAUR EA410, France; S. Yoshida, The University of Shiga Prefecture, Japan

**11:20 AM****(PACRIM8-S24-008-2009) Fracture Toughness of Glass-ceramics by COD Methods**

J. Deubener\*, N. Janakiraman, Clausthal University of Technology, Germany; E. Apel, Ivoclar Vivadent AG, Liechtenstein; R. Müller, Bundesanstalt für Materialforschung und -prüfung, Germany, Bundesanstalt für Materialforschung und -prüfung, Germany Federal Institute for Materials Research and Testing, Germany

**11:40 AM****(PACRIM8-S24-009-2009) Physics and Mechanics of the Indentation Deformation in Glass (Invited)**

T. Rouxel\*, H. Ji, H. Shang, J. Guin, E. Robin, J. Sangleboeuf, Université de Rennes 1, France

## Symposium 25: Glasses for Optoelectronic and Optical Applications

### Optically Active Glasses I

Room: Seymour

Session Chairs: Setsuhisa Tanabe, Kyoto University; Giancarlo Righini, CNR

**8:30 AM****(PACRIM8-S25-001-2009) Silica-coated lanthanide fluoride nanoparticles; from optical amplifiers to biolabels (Invited)**

F. C. van Veggel\*, University of Victoria, Canada

**9:00 AM****(PACRIM8-S25-002-2009) Rare earth doped tellurite glasses for fiber laser applications**

H. Ebendorff-Heidepriem\*, T. Foo, M. R. Oermann, Y. Li, R. C. Moore, T. M. Monro, University of Adelaide, Australia

**9:20 AM****(PACRIM8-S25-003-2009) Spectroscopic, Energy Transfer and Laser Characteristics of Tm<sup>3+</sup>, Ho<sup>3+</sup> and Yb<sup>3+</sup> Doped Tellurite Glass and Fibre**

B. Richards\*, J. Lousteau, A. Jha, The University Of Leeds, United Kingdom; Y. Tsang, D. Binks, The University Of Manchester, United Kingdom

**9:40 AM****Break****10:00 AM****(PACRIM8-S25-004-2009) Laser patterning and optical properties of Er:LiNbO<sub>3</sub> crystal architecture in glass**

T. Honma\*, T. Komatsu, Nagaoka University of Technology, Japan

**10:20 AM****(PACRIM8-S25-005-2009) Optical properties of rare-earth doped BaTi<sub>2</sub>O<sub>5</sub> glasses**

A. Masuno\*, H. Inoue, The University of Tokyo, Japan; Y. Jianding, Y. Arai, Japan Aerospace Exploration Agency, Japan; M. Kaneko, Tokyo Institute of Technology, Japan

**10:40 AM****(PACRIM8-S25-006-2009) Nanocrystallization in LaF<sub>3</sub> containing glasses**

A. De Pablos, N. Hemon, F. Muñoz, A. Durán, M. Pascual\*, Instituto de Cerámica y Vidrio (CSIC), Spain

**11:00 AM****(PACRIM8-S25-007-2009) Novel silicate glass ceramics containing green and red phosphors for white LED with high color-rendering**

S. Tanabe\*, T. Nakanishi, Kyoto University, Japan

**11:20 AM****(PACRIM8-S25-008-2009) Chalcogenide Glass Microspheres and their Applications**

D. Hewak\*, G. R. Elliott, J. S. Wilkinson, M. N. Zervas, G. S. Murugan, Y. Panitchob, University of Southampton, United Kingdom

**11:40 AM****(PACRIM8-S25-049-2009) Nano-architecture in Photonic Materials with a Femtosecond Laser (Invited)**

K. Hirao\*, K. Miura, M. Sakakura, Y. Shimotsuma, S. Kanehira, Kyoto University, Japan

## Symposium 26: Austen Angell Honorary Symposium

### Glasses and the “Glass Transition”

Room: Cypress

Session Chair: Jeff Yarger, Arizona State University

**8:30 AM**

**Jeff Yarger**

Introduction - C. Austen Angell Symposium

**8:40 AM**

**(PACRIM8-S26-001-2009) Ionic Conduction in Glass: A Review in Light of the Lithium Battery Problem (Invited)**

S. Martin\*, Iowa State University of Science and Technology, USA

**9:10 AM**

**(PACRIM8-S26-002-2009) Supercooled liquid unmixing at white heat – the detection of first order liquid-liquid phase transitions (Invited)**

G. N. Greaves\*, Aberystwyth University, United Kingdom

**9:40 AM**

**Break**

**10:00 AM**

**(PACRIM8-S26-003-2009) Decoupling of ionic motions in crystalline ionic conductors (Invited)**

T. Grande\*, NTNU, Norway

**10:30 AM**

**(PACRIM8-S26-004-2009) Recent progress in understanding relaxation in complex systems (Invited)**

K. L. Ngai\*, Naval Research Laboratory, USA

**11:00 AM**

**(PACRIM8-S26-005-2009) The Effect of Fragility on Photostructural Processes in Chalcogenide Network Glass (Invited)**

P. Lucas\*, University of Arizona, USA

**11:20 AM**

**(PACRIM8-S26-006-2009) Design Criteria of Complex Glasses as Low-Temperature Precursors for High Temperature Ceramic nano-Composites (Invited)**

W. T. Petuskey\*, Arizona State University, USA

**11:40 AM**

**(PACRIM8-S26-007-2009) Glass, Light, and Stress: The Composition Dependence of Photoelasticity in Glass (Invited)**

J. Zwanziger\*, Dalhousie University, Canada

## Symposium 27: International Fulrath Symposium on “New Frontiers of Ceramics for Sustainable Society”: In Honor of Prof. Noboru Ichinose and Prof. Richard C. Bradt

### International Fulrath Symposium II

Room: Regency E

Session Chairs: Takashi Goto, Institute for Materials Research; Kunihiro Koumoto, Nagoya University

**8:30 AM**

**(PACRIM8-S27-011-2009) Quantum Nanostructure Design for SrTiO<sub>3</sub>-based Thermoelectric Ceramics (Invited)**

K. Koumoto\*, Nagoya University, Japan

**9:00 AM**

**(PACRIM8-S27-012-2009) Geometric effect on longitudinal displacement of lead zirconate titanate thick films deposited on silicon substrates (Invited)**

T. Iijima\*, S. Fukuyama, National Institute of Advanced Industrial Science and Technology (AIST), Japan; Y. Komuro, S. Okamura, Tokyo University of Science, Japan

**9:30 AM**

**(PACRIM8-S27-013-2009) Protonic and Electronic Mixed Conduction in Tungsten Phosphate Glass and Its Hydrogen Transport**

S. Fujitsu\*, Shonan Institute of Technology, Japan; H. Kawazoe, Kawazoe Frontier Technology Inc., Japan

**9:50 AM**

**Break**

**10:10 AM**

**(PACRIM8-S27-014-2009) Growth of Polar-axis-oriented Epitaxial Pb(Zr, Ti)O<sub>3</sub> Thick Films Grown on (100)CaF<sub>2</sub> Substrates**

H. Funakubo\*, T. Fujisawa, H. Nakaki, S. Utsugi, R. Ikariyama, H. Morioka, M. Ishikawa, T. Yamada, Tokyo Institute of Technology, Japan

**10:30 AM**

**(PACRIM8-S27-015-2009) Dielectric Properties of A-site Substituted Polycrystalline BaTi<sub>2</sub>O<sub>5</sub> (Invited)**

T. Goto\*, X. Yue, R. Tu, Institute for Materials Research, Japan

**11:00 AM**

**(PACRIM8-S27-016-2009) Potential of Aerosol Deposition Process for Fabrication of Electroceramic Devices (Invited)**

J. Akedo\*, National Institute of Advanced Science and Technology, Japan

**11:30 AM**

**(PACRIM8-S27-017-2009) Powder-less Processing for Functional Ceramics: Nano-Composites via Melt-Solidification and Annealing of Eutectic Melts (Invited)**

M. Yoshimura\*, Tokyo Institute of Technology, Japan; N. Sakamoto, Shizuoka University, Japan; S. Araki, Kobelco Kaken, Japan; T. Watanabe, Meiji University, Japan; N. Matsushita, Tokyo Institute of Technology, Japan

## Symposium 01: Design, Modeling, and Simulation of Ceramic Interfaces

### Segregation at Grain Boundaries

Room: English Bay

Session Chair: Martha Mecartney, University of California, Irvine

**1:30 PM**

**(PACRIM8-S01-008-2009) Atomic Scale Study and Modeling of Silicon Nitride/Rare-Earth Oxide Interfaces (Invited)**

J. Idrobo\*, Vanderbilt University, USA

**2:00 PM**

**(PACRIM8-S01-009-2009) Rare-earth Segregation in  $\Sigma=13$ , [1-210]/{10-14} Grain Boundary of  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> (Invited)**

S. Azuma\*, N. Shibata, T. Mizoguchi, S. D. Findlay, T. Yamamoto, Y. Ikuhara, The University of Tokyo, Japan

**2:30 PM**

**(PACRIM8-S01-010-2009) Charge-Optimized Many Body Potentials for the Molecular Dynamics Simulation of Metal-Ceramic Interfaces (Invited)**

S. B. Sinnott\*, University of Florida, USA

**3:00 PM**

**Break**

**The Role of Grain Boundaries in Sintering**

Room: English Bay

Session Chairs: Martha McCartney, University of California, Irvine; Suk-Joong L. Kang, Korea Advanced Institute of Science and Technology

**3:20 PM****(PACRIM8-S01-011-2009) Grain Boundary Diagrams: From Activated Sintering to Materials-by-Design (Invited)**

J. Luo\*, X. Shi, Clemson University, USA

**3:50 PM****(PACRIM8-S01-012-2009) Densification during Sintering by Structural Transition at Grain Boundaries (Invited)**

S. Kang\*, M. Lee, Korea Advanced Institute of Science and Technology, Korea, South

**4:20 PM****(PACRIM8-S01-013-2009) Diffusional Creep Law for Densification Modeling of a Polycrystalline Material**

F. Mechighel\*, B. Pateyron, A. Maître, M. El Ganaoui, SPCTS Laboratory Limoges University, France

**4:40 PM****(PACRIM8-S01-014-2009) Rule of Interface Reactions in the Synthesis of Metal-Ceramic Composites**

R. Janssen\*, TU Hamburg-Harburg, Germany

**Symposium 04: Polymer Derived Ceramics and Composites****Polymer-Derived-Ceramic Fibers III**

Room: Plaza A

Session Chair: Dongpyo Kim, Chungnam National University

**1:20 PM****(PACRIM8-S04-022-2009) Functional silicon carbide fibers with small diameter by various shaping method and pyrolysis process using a modified polycarbosilane precursor (Invited)**

D. Riu\*, D. Shin, KICET, Korea, South; H. Kim, Seoul National University, Korea, South; S. Huh, Y. Kim, C. Kim, K. Cho, K. Lim, E. Park, E. Jin, KICET, Korea, South

**1:50 PM****(PACRIM8-S04-023-2009) Economy of Fuel Gas in a Combustion Furnace by Means of Si-C-Zr-O Tyranno Fiber Mat Sheets Converting High Temperature Gas Enthalpy into Radiant Heat Rays (Invited)**

K. Suzuki\*, Advanced Institute of Materials Science, Japan; K. Ito, Asahi Seisakusho Co., Ltd., Japan; M. Tabuchi, Niigata Furnace Kogyo Co., Ltd., Japan; M. Shibuya, Ube Industries, Ltd., Japan

**2:20 PM**

Break

**Bulk Components**

Room: Plaza A

Session Chair: Ralf Riedel, TU Darmstadt

**3:20 PM****(PACRIM8-S04-024-2009) Polymer-Derived Ceramics and Composites with Tailored Structure and Properties (Invited)**

W. J. Sherwood\*, S. Lewis, E. Bongio, Starfire Systems, Inc., USA

**3:50 PM****(PACRIM8-S04-025-2009) Functionally Graded Ceramics Derived from Pre-ceramic Polymers**

M. Steinau\*, N. Travitzky, P. Greil, University of Erlangen-Nuremberg, Germany

**4:10 PM****(PACRIM8-S04-026-2009) Pressureless Sintering ZrB<sub>2</sub>-SiC Composites at Low Temperatures**

M. Zhu\*, Y. Wang, Northwestern Polytechnical University, China

**4:30 PM****(PACRIM8-S04-027-2009) Preparation and properties of polymer-derived O'-SiAlON composites**

T. Plachky\*, Z. Lences, Slovak Academy of Sciences, Slovakia; R. Hauser, R. Riedel, Darmstadt University of Technology, Germany; P. Sajgalik, Slovak Academy of Sciences, Slovakia

**4:50 PM****(PACRIM8-S04-028-2009) Fabrication of PDCs with Tailored Structures from Liquid Precursors via Forming and Pyrolysis**

F. Hou, Y. Li\*, Tianjin University, China

**5:10 PM****(PACRIM8-S04-029-2009) Preparation of dense and crack-free boron nitride monoliths using two strategies from polyborazylene**

J. Li\*, V. Salles, Laboratoire des Multimateriaux et Interfaces (UMR CNRS 5615)-Université Claude Bernard Lyon1, France; G. Fantozzi, Université de Lyon, INSA-Lyon, MATEIS, CNRS UMR 5510, France; S. Bernerd, P. Miele, Laboratoire des Multimateriaux et Interfaces (UMR CNRS 5615)-Université Claude Bernard Lyon1, France

**5:30 PM****(PACRIM8-S04-030-2009) Mullite Monoliths, Coatings and Composites from Alumina Nanoparticles and a Pre-ceramic Polymer**

E. Bernardo\*, G. Parciannello, P. Colombo, University of Padova, Italy, Italy; J. Adler, D. Boettge, Fraunhofer Institut Keramische Technologien und Systeme IKTS, Germany

**Symposium 05: Advanced Powder Processing and Manufacturing Technologies****Colloidal Processing I, Forming and Manufacturing I**

Room: Plaza C

Session Chairs: Tetsuo Uchikoshi, National Institute for Materials Science; Takaaki Nagaoka, National Institute of Advanced Industrial Science and Technology; Cihangir Duran, Gebze Institute of Technology

**1:20 PM****(PACRIM8-S05-019-2009) Approach to the Heat-Island Effect Mitigation by a Novel Ceramics Forming Technique**

T. Shirai\*, M. Azuma, T. Kato, H. Watanabe, M. Fuji, M. Takahashi, Nagoya Institute of Technology, Japan

**1:40 PM****(PACRIM8-S05-021-2009) Two-component ceramic injection moulding for automotive and railway applications**

T. Moritz\*, A. Mannschatz, Fraunhofer IKTS, Germany; S. Veskovik Bukudur, Hidria Corp., AET Tolmin d.o.o., Slovenia; I. Heeren, Robert Bosch GmbH, Germany

**2:00 PM****(PACRIM8-S05-022-2009) Challenges and solutions in near-net-shape manufacturing of ceramic nanocomposites**

F. Kern\*, R. Gadow, University of Stuttgart, Germany

**2:20 PM****(PACRIM8-S05-023-2009) Colloidal processing of TiC performs for advanced cermet preparation**

B. Collier, K. P. Plucknett\*, Dalhousie University, Canada

**2:40 PM****(PACRIM8-S05-024-2009) Dispersion of Ceramic Particles in Aqueous Media with Surface Grafted Dispersant (Invited)**

K. Sato\*, H. Yilmaz, Y. Hotta, A. Ijuin, K. Watari, National Institute of Advanced Industrial Science and Technology (AIST), Japan

**3:10 PM**

Break



3:30 PM

(PACRIM8-S05-025-2009) **A role of moisture to hardness of dough**  
T. Kimura\*, Nagoya University, Japan; K. Nakaushiro, H. Kariya, Nihon network support inc., Japan; T. Mori, J. Tsubaki, Nagoya University, Japan

3:50 PM

(PACRIM8-S05-026-2009) **Rheology of Concentrated Alumina Non-aqueous Slurry and Their Influence on Structure of Powder Compact**  
R. Furushima\*, S. Tanaka, K. Uematsu, Z. Kato, Nagaoka University of Technology, Japan

## Novel Forming/Sintering Technology

Room: Plaza C

Session Chairs: Kimiyasu Sato, National Institute of Advanced Industrial Science and Technology (AIST); Shoichi Kume, National Institute of Advanced Industrial Science and Technology (AIST)

4:30 PM

(PACRIM8-S05-027-2009) **Templated Grain Growth and Properties of Bioinspired Ceramic Microstructure Composites (Invited)**  
R. J. Pavlacka, G. L. Messing\*, Pennsylvania State University, USA

5:00 PM

(PACRIM8-S05-028-2009) **Fabrication of c-axis oriented Sr<sub>2</sub>NaNb<sub>5</sub>O<sub>15</sub> ceramics in a rotating magnetic field and piezoelectric property**  
S. Tanaka\*, T. Kawase, R. Furushima, K. Uematsu, Nagaoka University of Technology, Japan; H. Shimizu, Y. Doshida, Taiyo Yuden Co Ltd, Japan

5:20 PM

(PACRIM8-S05-029-2009) **Fabrication and characterization of ZnO ceramics using ZnO/nano Al<sub>2</sub>O<sub>3</sub> composite particles prepared by mechanical treatment**

S. Tasaki\*, J. Tatami, T. Wakihara, K. Komeya, T. Meguro, Yokohama National University, Japan; H. Nakano, Ryukoku University, Japan

5:40 PM

(PACRIM8-S05-030-2009) **Analysis of sintering behavior of MgO-doped Al<sub>2</sub>O<sub>3</sub> prepared by different mixing technique**  
J. Tatami\*, K. Hashidume, T. Wakihara, K. Komeya, T. Meguro, Yokohama National University, Japan

## Symposium 07: Nanostructured Materials and Systems

### Controlled Assembly / Self-Organization of Nanostructures

Room: Balmoral

Session Chair: Michael Carpenter, University at Albany-SUNY

1:20 PM

(PACRIM8-S07-020-2009) **Confinement effects in metal oxide dots and rods (Invited)**  
L. Vayssieres\*, National Institute for Materials Science, Japan

1:50 PM

(PACRIM8-S07-022-2009) **Liquid Phase Patterning and Morphology Control of Metal Oxides and Colloidal Crystals (Invited)**  
Y. Masuda\*, National Institute of Advanced Industrial Science and Technology, Japan

2:20 PM

(PACRIM8-S07-023-2009) **Controlled Growth of Bio- and Nano-Arrays on Dip-Pen Nanolithography Generated Templates (Invited)**  
H. Zhang\*, Nanyang Technological University, Singapore

2:40 PM

Break

## Nanowires: Growth and Device Applications

Room: Balmoral

Session Chair: Mohammed Es-Souni, Insitute for Materials & Surface Technology, University of Applied Sciences

3:20 PM

(PACRIM8-S07-025-2009) **Nanowires as Building Blocks of New Devices: Present State and Prospects (Invited)**  
F. Hernandez-Ramirez\*, Electronic Nanosystems S.L., Spain; J. Prades, R. Jimenez-Diaz, A. Romano-Rodriguez, A. Cirera, University of Barcelona, Spain; S. Barth, S. Mathur, University of Cologne, Germany; J. Morante, University of Barcelona, Spain

3:50 PM

(PACRIM8-S07-026-2009) **Multi-layered Stacks of Devices on Non-Crystalline Substrates with Highly Oriented Semiconductor Nanowires (Invited)**

M. Saif Islam\*, University of California, USA

4:20 PM

(PACRIM8-S07-027-2009) **Synthesis of PbTe Nanowires with Enhanced Thermoelectric Properties**

A. Yan\*, W. Zhou, H. Cheng, H. Hng, F. Boey, J. Ma, Nanyang Technological University, Singapore

4:40 PM

(PACRIM8-S07-028-2009) **Structural and Optical Properties of Ion-Implanted ZnO Nanorods**

S. Han\*, B. Kim, C. Park, Chonbuk National University, Korea, South; Y. Lee, S. Seo, C. Kwak, S. Kim, Pohang University of Science and Technology, Korea, South; S. Park, Research Institute of Industrial Science and Technology, Korea, South

5:00 PM

(PACRIM8-S07-029-2009) **Controlled Synthesis and Growth Mechanism Study of Tin Oxide Nanowire Arrays**

J. Pan, H. Shen\*, S. Mathur, University of Cologne, Germany

5:20 PM

(PACRIM8-S07-030-2009) **Buffer-Facilitated Area-Density Control of Al doped ZnO Nanowire Arrays**

C. Kuo\*, National Cheng Kung University, Taiwan, Taiwan; R. Wang, National University of Kaohsiung, Taiwan, Taiwan; J. Huang, C. Liu, National Cheng Kung University, Taiwan, Taiwan

5:40 PM

(PACRIM8-S07-031-2009) **Preparation of Thin Films of TiO<sub>2</sub>-Nanowires Using Electrophoresis Deposition Method**

K. Ito\*, T. Kano, Y. Sato, M. Adachi, S. Yoshikado, Doshisha university, Japan

## Symposium 08: Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Applications

### CMCs: Applications

Room: Oxford

Session Chairs: Katsutoshi Komeya, Yokohama National University; Walter Krenkel, University of Bayreuth

1:30 PM

(PACRIM8-S08-018-2009) **Silicon Nitride and Silicon Carbide Components as Enabling Tools in Avionics, Space and Dispersing Technology (Invited)**

K. Berroth\*, FCT Ingenieurkeramik GmbH, Germany

2:00 PM

(PACRIM8-S08-019-2009) **Ceramic Matrix Composites for Advanced Friction Applications**

W. Krenkel\*, University of Bayreuth, Germany

2:20 PM

(PACRIM8-S08-020-2009) **Tribological Properties of Carbon/Silicon Carbide Brake Materials**

S. Fan\*, L. Zhang, Y. Xu, L. Cheng, Northwestern Polytechnical University, China

**2:40 PM**

**(PACRIM8-S08-021-2009) Fabrication of porous SiC sheets with controlled porosity from waste clutch boards**

Y. Domi\*, M. Murata, S. Shimada, Hokkaido University, Japan

**3:00 PM**

**Break**

**3:20 PM**

**(PACRIM8-S08-022-2009) Nano-sized TiN dispersed Si<sub>3</sub>N<sub>4</sub> ceramics as new bearing balls (Invited)**

K. Komeya\*, J. Tatami, Yokohama National University, Japan; H. Komorita, Y. Fukuda, Toshiba Materials Co., Ltd., Japan; M. Takeda, T. Hattori, JTEKT Corp., Japan

**3:50 PM**

**(PACRIM8-S08-023-2009) Electrically Conductive Ceramic Materials on the Basis of Silicon Nitride**

H. Klemm\*, A. Bales, E. Zschippang, FhG IKTS Dresden, Germany

**4:10 PM**

**(PACRIM8-S08-024-2009) alpha/beta SiAlON-Based Composites Incorporated with TiN, TiCN and MoSi<sub>2</sub> for Electrical Applications**

A. Kara\*, E. Ayas, Anadolu University, Turkey

**4:30 PM**

**(PACRIM8-S08-025-2009) Transparent Ceramics**

J. S. Sanghera\*, G. Villalobos, W. Kim, S. Bayya, L. B. Shaw, J. Frantz, B. Sadowski, F. Miklos, I. D. Aggarwal, Naval Research Laboratory, USA

**4:50 PM**

**(PACRIM8-S08-026-2009) The effects of doping and oxygen stoichiometry on the optical properties of doped CuMn<sub>2</sub>O<sub>4</sub> spinels**

C. J. Leslie\*, R. K. Bordia, University of Washington, USA; C. Zollfrank, University of Erlangen-Nuernberg, Germany

**5:10 PM**

**(PACRIM8-S08-027-2009) Relation between the optical properties and lattice defects of highly translucent aluminum nitride ceramics fabricated by the novel annealing process**

Y. Kanechika\*, Hiroshima Univ., Japan; Y. Kaito, M. Azuma, TOKUYAMA Corp., Japan; H. Fukushima, Hiroshima Univ., Japan

## **Symposium 09: Advanced Ceramic Coatings: Processing, Properties, and Applications**

### **Tribological Wear- and Erosion-Resistant Coatings**

Room: Prince of Wales

Session Chairs: Junyan Zhang, State Key Laboratory of Solid Lubrication; Yoshinori Koga, Advanced Industrial Science and Technology

**1:20 PM**

**(PACRIM8-S09-019-2009) Development of Coating Technology Platforms for Wear Applications (Invited)**

I. Spitsberg\*, A. Inspektor, Kennametal Inc., USA

**1:50 PM**

**(PACRIM8-S09-020-2009) Super-hard, Ultra-thick TiSiCN Nanocomposite Coating for Severe Environments (Invited)**

R. Wei\*, Southwest Research Institute, USA

**2:20 PM**

**(PACRIM8-S09-021-2009) Bias Enhanced Nucleation of Carbon Nitride**

Y. Sakamoto\*, M. Takaya, Chiba Institute of Technology, Japan

**2:40 PM**

**(PACRIM8-S09-022-2009) Improved hemocompatibility of Si-DLC surface by plasma surface treatment**

R. Roy, M. Moon, K. Lee\*, D. Han, Korea Institute of Science and Technology, Korea, South; J. Shin, Asan Medical Center, Korea, South; T. Hasebe, Tachikawa Hospital, Japan

**3:00 PM**

**Break**

## **Interface, Multifunctional and Corrosion Protective Coatings**

Room: Prince of Wales

Session Chairs: Tetsuya Suzuki, Keio University; Kwang-Ryeol Lee, Korea Institute of Science and Technology

**3:20 PM**

**(PACRIM8-S09-023-2009) Ceramic matrix composites: Influence of interfacial coatings for SiC and carbon reinforced fibers (Invited)**

N. Baklanova\*, A. Matvienko, A. Utkin, Institute of Solid State Chemistry and Mechanochemistry SB RAS, Russia; T. Anatoly, General Institute of Geology, Geophysics and Mineralogy SB RAS, Russia; B. Zaitsev, State Scientific Center Vector, Russia

**3:50 PM**

**(PACRIM8-S09-024-2009) Silicon carbide and pyrolytic carbon coatings for applications in nuclear reactors (Invited)**

E. Lopez-Honorato, J. Meadows, J. Tan, P. Xiao\*, University of Manchester, United Kingdom

**4:20 PM**

**(PACRIM8-S09-025-2009) Production and Properties of Graphite of Nanometer Thickness (Invited)**

A. N. Obratsov\*, P. G. Kopylov, A. V. Tyurnina, R. R. Ismagilov, Moscow State University, Russia

**4:50 PM**

**(PACRIM8-S09-026-2009) Insight into high temperature oxidation of Al<sub>2</sub>O<sub>3</sub>-forming Ti<sub>3</sub>AlC<sub>2</sub>**

X. Wang\*, Y. Zhou, X. Zhang, Z. Sun, M. Li, Institute of Metal Research, Chinese Academy of Sciences, China

**5:10 PM**

**(PACRIM8-S09-027-2009) Fabrication and Corrosion Resistance of AlN Coating Prepared by Aerosol Deposition**

B. Lee, D. Park\*, B. Hahn, W. Yoon, J. Ryu, J. Choi, Korea Institute of Materials Science, Korea, South

**5:30 PM**

**(PACRIM8-S09-028-2009) Oxidation Analysis of 2D C/ZrC-SiC Composites with Different Coating Structures in CH<sub>4</sub> Combustion Gas Environment**

H. Li\*, L. Zhang, L. Cheng, Y. Wang, Northwestern Polytechnical University, China

**5:50 PM**

**(PACRIM8-S09-029-2009) Effect of Nano Silica on Acid Resistant Properties of Enamel and Its Connection to Energy Saving**

M. Jafari\*, J. Sarraf, Islamic Azad University of Najafabad, Iran

## **Symposium 11: Advances in Electroceramics**

### **Processing of Piezoelectric Ceramics/ Piezoelectric Transducers**

Room: Regency A

Session Chairs: Hong Wang, Xi'an Jiaotong University; Hisao Suzuki, Shizuoka University

**1:20 PM**

**(PACRIM8-S11-010-2009) Dielectric and Piezoelectric Properties of Fine-grained Barium Titanate Ceramics (Invited)**

T. Hoshina\*, H. Takeda, T. Tsurumi, Tokyo Institute of Technology, Japan

1:50 PM

(PACRIM8-S11-011-2009) Electrical Properties of BaTiO<sub>3</sub> Ceramics Obtained by Heating in Hydrogen Atmosphere Followed by Cooling in Air

N. Takeuchi\*, T. Ohira, S. Hayashi, H. Kobayashi, Kyoto Institute of Technology, Japan

2:10 PM

(PACRIM8-S11-012-2009) Microstructure Control in (K<sub>0.5</sub>Na<sub>0.5</sub>)NbO<sub>3</sub> by Control of Sintering Conditions

J. G. Fisher, S. L. Kang\*, Korea Advanced Institute of Science and Technology, Korea, South

2:30 PM

(PACRIM8-S11-013-2009) Low-Doped ZnO-Bi<sub>2</sub>O<sub>3</sub>-Based Varistor Ceramics for Broad Range of Voltages Prepared by Exploiting the IBs-Induced Grain-Growth Mechanism

S. Bernik\*, M. Podlogar, N. Daneu, A. Recnik, Jozef Stefan Institute, Slovenia

2:50 PM

(PACRIM8-S11-014-2009) Transformation of current limiting effect into varistor effect in tin dioxide based ceramics

O. Bondarchuk\*, Universidad Tecnologica de la Mixteca, Mexico; O. Glot, Universidad Tecnologica de la Mixteca, Mexico; M. Marquez Miranda, Universidad Tecnologica de la Mixteca, Mexico

3:10 PM

Break

3:30 PM

(PACRIM8-S11-015-2009) Piezo-Ferroelectric Thin Films: From Nucleation to Functionality (Invited)

P. Muralt\*, EPFL, Switzerland

4:00 PM

(PACRIM8-S11-016-2009) Sol-Gel Piezoelectric Thin and Thick Films for MEMS Applications

W. Ren\*, Xi'an Jiaotong University, China

4:20 PM

(PACRIM8-S11-017-2009) A Novel Spiral Type MEMS Power Generator with Shear Mode Piezoelectric Thick Film

H. Song\*, C. Kang, S. Yoon, Korea Institute of Science and Technology, Korea, South

4:40 PM

(PACRIM8-S11-018-2009) Large Area PZT-PVDF Composite Thick Film by Aerosol Deposition for Sensor Applications

J. Choi\*, J. Ryu, B. Hahn, W. Yoon, B. Lee, D. Park, Korea Institute of Machinery and Materials, Korea, South

5:00 PM

(PACRIM8-S11-019-2009) Study on High Frequency Ultrasound Probe Using Piezoelectric Film Deposited by Aerosol Deposition Method

A. Endo\*, J. Akedo, National Institute of Advanced Industrial Science and Technology, Japan

5:20 PM

(PACRIM8-S11-020-2009) Piezoceramic actuators with honeycomb structure for active vibration control

X. Zhang\*, Institute of Nonmetallic Materials, Clausthal University of Technology, Germany; J. Melcher, D. Fingerhut, Institute of Composite Structures and Adaptive Systems, German Aerospace Center, Germany; J. Günster, J. G. Heinrich, Institute of Nonmetallic Materials, Clausthal University of Technology, Germany

5:40 PM

(PACRIM8-S11-021-2009) Various application of a piezo-electric fiber, and utilization to energy HARVEST

H. Sato\*, National Institute for Advanced Industrial Science and Technology, Japan

## Symposium 12: Microwave Materials and Their Applications

### New Materials and Technology for Microwave Materials and Their Applications

Room: Regency B

Session Chairs: Takeshi Shimada, Hitachi Metals LTD.; Igor Levin, NIST

1:20 PM

(PACRIM8-S12-019-2009) Terahertz Wave Properties of Alumina Photonic Crystals and Amorphous (Invited)

S. Kiriwara\*, N. Ohota, T. Niki, M. Kaneko, Osaka University, Japan

1:50 PM

(PACRIM8-S12-020-2009) Flexible Design of Composite Electromagnetic Wave Absorber Made of Aluminum or Sendust Particles Dispersed in Polystyrene Resin

K. Sakai\*, Y. Wada, Y. Sato, S. Yoshikado, Doshisha University, Japan

2:10 PM

(PACRIM8-S12-022-2009) Bismuth Niobate-Based Glass-Ceramics for Dielectrically Loaded Microwave Antennas (Invited)

I. M. Reaney\*, University of Sheffield, United Kingdom

2:40 PM

(PACRIM8-S12-023-2009) Layered Dielectric Resonators and Their Applications (Invited)

L. Li\*, X. Chen, Zhejiang University, China

3:10 PM

Break

3:30 PM

(PACRIM8-S12-024-2009) La<sub>2/3</sub>TiO<sub>3</sub> and Li<sub>1/2</sub>Nd<sub>1/2</sub>TiO<sub>3</sub> Based Microwave Dielectric Ceramics (Invited)

W. Wang, F. Azough, R. Freer\*, University of Manchester, United Kingdom

4:00 PM

(PACRIM8-S12-025-2009) Dielectric Properties of Barium-Neodymium-Titanate compounds at microwave frequencies

S. Narang\*, D. Kaur, K. S. Thind, GND University, India

4:20 PM

(PACRIM8-S12-026-2009) Microwave Dielectric Properties of Solid Solution of AB<sub>2</sub>O<sub>6</sub> (A=Ni<sup>2+</sup>, Mg<sup>2+</sup>, Zn<sup>2+</sup>, B=Nb<sup>5+</sup>, Ta<sup>5+</sup>) and TiO<sub>2</sub>

E. Kim\*, Kyonggi University, Korea, South; S. Seo, Kyonggi University, Korea, South; H. Ohsato, Nagoya Institute of Technology, Japan

4:40 PM

(PACRIM8-S12-027-2009) Temperature Coefficient of Resonant Frequency Control of ZnAl<sub>2</sub>O<sub>4</sub>-Co<sub>2</sub>TiO<sub>4</sub> Microwave Dielectric Ceramics

W. Lu\*, W. Lei, Huazhong University of Science and Technology, China

5:00 PM

(PACRIM8-S12-028-2009) Effect of temperature variation on dielectric properties of Ba<sub>4</sub>(La(1-z)Biz)<sub>9.33</sub>Ti<sub>18</sub>O<sub>54</sub> solid solutions

S. Narang\*, S. Bahel, K. S. Thind, GND University, India

## Symposium 14: Solid Oxide Fuel Cells and Hydrogen Technology

### Electrode Materials and Microstructural Engineering; Ceramic and Metallic Interconnects; Degradation Mechanisms

Room: Georgia B

Session Chairs: Fatih Dogan, Missouri University of Science and Technology; Masanobu Awano, National Institute of Advanced Industrial Science and Technology (AIST)

**1:20 PM**

**(PACRIM8-S14-001-2009) Oxygen Diffusivity and Diffusion Route in Gallium and Copper doped Pr<sub>2</sub>NiO<sub>4</sub> Mixed Conductor for Oxygen Permeation (Invited)**

T. Ishihara\*, K. Tominaga, Kyushu University, Japan; M. Yashima, Tokyo Institute of Technology, Japan

**1:50 PM**

**(PACRIM8-S14-002-2009) Fuel Cells: Importance of Understanding the Role of Chemical Potentials of Neutral Species inside the Electrolyte (Invited)**

A. Virkar\*, University of Utah, USA

**2:20 PM**

**(PACRIM8-S14-003-2009) Chromium Deposition and Poisoning Mechanism of Solid Oxide Fuel Cell Cathodes: A Systematic Study (Invited)**

S. Jiang\*, Nanyang Technological University, Singapore

**2:40 PM**

**(PACRIM8-S14-004-2009) Nanocomposite Materials for Highly Durable Solid Oxide Fuel Cell Cathodes (Invited)**

H. Song, S. Lee, S. Hyun, J. Moon\*, Yonsei University, Korea, South

**3:00 PM**

**Break**

**3:20 PM**

**(PACRIM8-S14-005-2009) A Comparison of Oxygen Exchange in LSM/YSZ and CGO/LSCF Composite Cathode Materials (Invited)**

J. A. Kilner\*, J. Druce, M. Dhallu, Imperial College, United Kingdom

**3:40 PM**

**(PACRIM-S14-039-2009) Synthesis and Long-term Test of Novel Silicate Sealing Glass for IT-SOFC**

S. Lin\*, Y. Chen, W. J. Wei, Materials Science and Engineering, Taiwan

**4:00 PM**

**(PACRIM8-S14-007-2009) Stability of SOFC cathode materials**

B. Jiang, J. S. Ovenstone, J. Lee, S. T. Misture\*, Alfred University, USA

**4:20 PM**

**(PACRIM8-S14-009-2009) Microstructural Engineering of Nanoscaled La<sub>x</sub>Sr<sub>1-x</sub>CoO<sub>3-δ</sub> Thin Film Cathodes for SOFC**

J. Hayd\*, B. Rüger, Karlsruhe Institute of Technology (KIT), Germany; U. Guntow, Fraunhofer Institute for Silicate Research (ISC), Germany; E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT), Germany

**4:40 PM**

**(PACRIM8-S14-010-2009) Microstructure Design of Solid Oxide Fuel Cell Electrodes**

R. Garcia\*, Purdue University, USA

## Symposium 21: Nano-Biotechnology and Ceramics in Biomedical Applications

### Next Generation Bioceramics

Room: Georgia A

Session Chair: Christian Rey, INPT

**1:20 PM**

**(PACRIM8-S21-018-2009) Biomimicking Extracellular Matrix Proteins-Using Nanoscale Composites for Tissue Regeneration (Invited)**

S. Ramakrishna, M. Ngiam\*, National University of Singapore, Singapore

**1:50 PM**

**(PACRIM8-S21-019-2009) Some Advantages of Glass as a Biomaterial or as a Biomaterial Precursor (Invited)**

A. G. Clare\*, New York State College of Ceramics at Alfred University, USA

**2:20 PM**

**(PACRIM8-S21-020-2009) Adsorption onto nanocrystalline apatitic calcium phosphates. Applications to growth factors and drugs delivery (Invited)**

C. C. Rey\*, F. Erassifi, A. Menbaoui, H. Autefage, S. Sarda, V. Santran, A. Lebugle, INPT, France; A. Barroug, University of Marrakech, Morocco; H. Sfihi, ESPCI, France

**2:50 PM**

**Break**

**3:10 PM**

**(PACRIM8-S21-021-2009) Hyperthermia Efficacy of Nanoparticles for Cancer Therapy**

E. R. Fuller\*, National Institute of Standards & Technology, USA

**3:30 PM**

**(PACRIM8-S21-022-2009) Layered Double Hydroxide Nanobiohybrid: A Novel DNA Delivery System**

S. Shafiei\*, M. Solati-Hashjin, Z. Tahmasebi-Birgani, Amirkabir university of technology, Iran; M. Salarian, Islamic Azad University, Sciences and Researchs Branch, Iran

**3:50 PM**

**(PACRIM8-S21-023-2009) The antibacterial effect of nano-complex**

M. Lv, S. Su, Y. Su, Shanghai Institute of Applied Physics, Chinese Academy of Sciences, China; E. Zhu, Y. Zhao, Sichuan University, China; C. Fan, Q. Huang\*, Shanghai Institute of Applied Physics, Chinese Academy of Sciences, China

**4:10 PM**

**(PACRIM8-S21-024-2009) Protein Bioencapsulation in Nanoporous Sol-gel Glasses: A Study of Protein Conformation Leading to a New Surface Micropatterning Process**

B. Menaa\*, University of Liege, USA

**4:30 PM**

**(PACRIM8-S21-025-2009) Immobilization of Antimicrobial Peptides on Titanium Surfaces**

S. Lu\*, K. Duan, J. Kindrachuck, R. E. Hancock, R. Wang, University of British Columbia, Canada

**4:50 PM**

**(PACRIM8-S21-026-2009) Moisture effect on tubular alumina toughened zirconia ceramic for implant casing**

W. So\*, G. Jiang, Alfred Mann Foundation, USA

**5:10 PM**

**(PACRIM8-S21-027-2009) Layered Double Hydroxide: A New Ceramic-based Hemostatic Agent**

Z. Tahmasebi-Birgani, M. Solati-Hashjin, Amirkabir University of Technology, Iran; H. Peirovi, Shaheed Beheshti University of Medical Science, Iran; S. Shafiei, A. Farzadi, A. Aminian\*, Amirkabir University of Technology, Iran

**Symposium 23: Glass Science****Structural Basis of Glass Properties II**

Room: Grouse

Session Chair: Josef Zwanziger, Dalhousie University

**1:20 PM****(PACRIM8-S23-010-2009) Composition Dependence of Boson Peaks in Lithium Borate Binary Glasses by Neutron Inelastic and Raman Scattering**

Y. Matsuda\*, Y. Fukawa, M. Kawashima, Univ. of Tsukuba, Japan; Y. Moriya, T. Yamada, O. Yamamuro, S. Kojima, Univ. of Tokyo, Japan

**1:40 PM****(PACRIM8-S23-011-2009) Fast-ion conduction, boson and floppy modes, and the three elastic phases of (AgI)<sub>x</sub>(AgPO<sub>3</sub>)<sub>1-x</sub> solid electrolyte glasses**

D. I. Novita\*, P. Boolchand, University of Cincinnati, USA; M. Malki, Polytech'Orleans - Universite d'Orleans, France; M. Micoulaut, Universite Pierre et Marie Curie, France

**2:00 PM****(PACRIM8-S23-012-2009) The influence of the structure on the ionic conductivity of phosphate-based glasses**

F. Munoz\*, Instituto de Ceramica y Vidrio (CSIC), Spain; L. Montagne, ENSCL, Universite de Lille 1, France; A. Duran, Instituto de Ceramica y Vidrio (CSIC), Spain

**2:20 PM****(PACRIM8-S23-013-2009) Effect of Cu addition on the electrical conductivity and optical absorption of lithium borate glasses**

S. Annamalai\*, R. P. Bhatta, B. Dutta, I. L. Pegg, The Catholic University of America, USA

**2:40 PM****(PACRIM8-S23-015-2009) Network Evolution in Alkali Zn Borophosphate Glasses**

B. Aitken\*, R. Youngman, Corning Inc., USA

**3:00 PM**

Break

**3:20 PM****(PACRIM8-S23-016-2009) Thermal Properties, Durability, and Structure of Zinc Phosphate Glasses**

H. Takebe\*, Ehime University, Japan; T. Kubo, Y. Baba, M. Kuwabara, Kyushu University, Japan

**3:40 PM****(PACRIM8-S23-017-2009) Structure-Property Relationships of Ternary Zn Phosphotellurite Glasses**

S. Gomez\*, B. G. Aitken, Corning Incorporated, USA

**4:00 PM****(PACRIM8-S23-018-2009) Quench Rate and Temperature Effects on Aluminoborosilicates Glass Structure: A high-resolution B-11 MAS, Al-27 MAS, B-11 triple-quantum MAS and high-temperature in situ MAS NMR Study**

J. Wu\*, J. F. Stebbins, Stanford University, USA

**4:20 PM****(PACRIM8-S23-019-2009) Influence of Fictive Temperature on Na-Al-Si-Phosphate Glass**

M. Potuzak\*, R. E. Youngman, J. E. Dickinson, Corning Incorporated, USA

**4:40 PM****(PACRIM8-S23-020-2009) Structure and Physical Properties of Oxyfluoride Glasses**

J. E. Dickinson\*, R. E. Youngman, M. Potuzak, Corning Incorporated, USA

**5:00 PM****(PACRIM8-S23-021-2009) The Structural Similarity between Alkali Diborate Glasses and Crystals and its Relation to the Devitrification Mechanisms**

B. Chen\*, U. Werner-Zwanziger, Dalhousie University, Canada; M. L. Nascimento, L. Ghussn, E. D. Zanotto, Universidade Federal de São Carlos, Brazil; J. W. Zwanziger, Dalhousie University, Canada

**5:20 PM****(PACRIM8-S23-022-2009) Molecular Densification and Multiple Amorphous States by Deformation of Al<sub>2</sub>O<sub>3</sub> – 15 mol% Y<sub>2</sub>O<sub>3</sub> Glass**

A. Paul\*, V. Jayaram, Indian Institute of Science, India

**Symposium 24: Glass Technology, Energy and Environment****Glass Ceramics**

Room: Stanley

Session Chair: Mark Davis, SCHOTT North America, Inc.

**1:30 PM****(PACRIM8-S24-010-2009) Development of Glass-ceramic Products in NEG (Invited)**

A. Sakamoto\*, Nippon Electric Glass, Japan

**2:00 PM****(PACRIM8-S24-011-2009) High strength glass-ceramics veneered with fluoroapatite glass-ceramic**

W. Hoeland\*, V. M. Rheinberger, E. Apel, Ivoclar vivadent AG, Liechtenstein; J. Deubener, TU Clausthal, Germany

**2:20 PM****(PACRIM8-S24-012-2009) Viscosity of crystallizing glasses and reactive glass matrix composites**

J. Deubener\*, A. Thiel, Clausthal University of Technology, Germany; R. Müller, Federal Institute for Materials Research and Testing (BAM), Germany

**2:40 PM****(PACRIM8-S24-013-2009) Sintering kinetics of glass matrix composites for LTCC**

R. Mueller\*, S. Reinsch, M. Eberstein, Federal Institute for Materials Research and Testing, Germany; J. Deubener, Clausthal University of Technology, Germany

**3:00 PM**

Break

**3:20 PM****(PACRIM8-S24-014-2009) Unique Crystallization Behaviors of Some Nonlinear Optical Crystals in Glasses (Invited)**

T. Komatsu\*, T. Honma, Nagaoka University of Technology, Japan

**3:50 PM****(PACRIM8-S24-015-2009) Structural modifications occurring during the nucleation of a Ti-bearing aluminosilicate glass**

M. Guignard\*, L. Cormier, N. Menguy, Université Pierre et Marie Curie, France; V. Montouillout, CNRS, France

**4:10 PM****(PACRIM8-S24-017-2009) Glass-ceramic materials as alternatives to bauxite and kaolinite in the hydrocarbon extraction industry**

R. P. Koseski\*, J. R. Hellmann, B. E. Scheetz, The Pennsylvania State University, USA

**4:30 PM****(PACRIM8-S24-018-2009) Evaluation of technological and aesthetical performances of coloured ceramic frits obtained by different processing routes**

M. Raimondo\*, M. Dondi, ISTECCNR, Italy; G. Brusa, N. Gambi, E. Cani, Vettriceramici SPA, Italy; G. Guarini, ISTECCNR, Italy

**4:50 PM****(PACRIM8-S24-019-2009) Fabrication and characterization of lithium ion battery materials based on glass-ceramics processing technique**

K. Nagamine\*, T. Honma, T. Komatsu, Nagaoka University of Technology, Japan; S. Marukane, T. Sato, Tsuruoka National College of Technology, Japan

**5:10 PM****(PACRIM8-S24-020-2009) Characterization of Electrically-conductive Glass-ceramics**

M. Davis\*, P. Vullo, SCHOTT North America, Inc., USA; I. Mitra, P. Blaum, SCHOTT AG, Germany; K. Gudgel, 6161 Mayfair St., USA; N. Donnelly, C. Randall, The Pennsylvania State University, USA

5:30 PM

**(PACRIM8-S24-021-2009) History and Possible Future of Studies and Predictions of Glass Properties**

O. Mazurin\*, A. Priven, A. Sukharevsky, ITC, inc., Russia

**Symposium 25: Glasses for Optoelectronic and Optical Applications****Optically Active Glasses II**

Room: Seymour

Session Chairs: Shibin Jiang, Avalue Photonics Inc, USA; Animesh Jha, University of Leeds; Dan Hewak, University of Southampton

1:20 PM

**(PACRIM8-S25-009-2009) Rare-Earth doped Chalcogenide and Chalcohalide Glasses - luminescent materials for VIS and MID Ir Regions (Invited)**

M. Frumar\*, University Pardubice, Czech Republic; B. Frumarova, Inst. Macromolecular Chem. Czech Acad. Sci., Czech Republic; P. Nemeč, University Pardubice, Czech Republic; J. Oswald, Inst. of Physics, Czech Acad. Sci., Czech Republic; T. Wagner, University Pardubice, Czech Republic

1:50 PM

**(PACRIM8-S25-010-2009) Ni<sup>2+</sup> doped glass-ceramics for broadband optical amplification (Invited)**

J. Qiu\*, Zhejiang University, China

2:20 PM

**(PACRIM8-S25-011-2009) New applications for bismuth doped materials**

M. Peng\*, University of Erlangen, Germany

2:40 PM

**(PACRIM8-S25-012-2009) Spectroscopic studies on Bi<sub>2</sub>O<sub>3</sub>-doped germanium oxide glasses for near-infrared broadband light amplification**

X. Jiang\*, B. Richard, A. Jha, University of Leeds, United Kingdom

3:00 PM

Break

3:20 PM

**(PACRIM8-S25-013-2009) Controlling the Size of PbS Quantum Dots in Glasses using Rare-earth Ions**

S. Shim\*, C. Liu, J. Heo, Pohang University of Science and Technology, Korea, South

3:40 PM

**(PACRIM8-S25-014-2009) Spatial control of PbS QDs precipitation in glasses via femto-second laser irradiation**

J. Heo, Pohang University of Science and Technology, Korea, South; C. Liu\*, Harbin Institute of Technology, China; Y. Kwon, Pohang University of Science and Technology, Korea, South; B. Kim, I. Sohn, Gwangju Institute of Science and Technology, Korea, South

4:00 PM

**(PACRIM8-S25-015-2009) Terrace-Microspheres for Laser Emission - Formation mechanism and control of the terrace structure on glass spheres -**

H. Uehara\*, H. Segawa, T. Yano, S. Shibata, Tokyo Institute of Technology, Japan

4:20 PM

**(PACRIM8-S25-016-2009) Electric Field-Assisted Migration of Dye Molecules into Organic/Inorganic Hybrid Waveguide by Capillary Electrophoresis Doping Technique**

J. Taguchi\*, T. Yano, H. Segawa, S. Shibata, Tokyo Institute of Technology, Japan

4:40 PM

**(PACRIM8-S25-017-2009) Preparation of a Colored Glass Layer on a Soda-Lime Silicate Plate Glass for Wavelength-Selective Transmission**

A. Yasumori\*, Y. Ohara, A. Kakizaki, T. Yamato, T. Kishi, Tokyo University of science, Japan

5:00 PM

**(PACRIM8-S25-018-2009) Role of Composition on the Changes to Binary Phosphate Glass Structure Induced by Fs Laser Waveguide Writing**

L. B. Fletcher\*, J. J. Witcher, University of California Davis, USA; R. K. Brow, Missouri University of Science &amp; Technology, USA; D. M. Krol, University of California Davis, USA

5:20 PM

**(PACRIM8-S25-019-2009) Nucleation and Growth Behavior of Tellurite Based Glasses and Fibers**

J. Massera\*, Clemson University, USA; I. Moog, CNRS UPR 9048, France; L. Petit, K. Richardson, Clemson University, USA

5:40 PM

**(PACRIM8-S25-020-2009) Properties and Structures of Tin Borophosphate Glasses**

J. Lim\*, M. L. Schmitt, R. K. Brow, Missouri S&amp;T, USA; H. Yang, National United University, Taiwan

**Symposium 26: Austen Angell Honorary Symposium****Glasses and Fragility**

Room: Cypress

Session Chair: Steve Martin, Iowa State University of Science and Technology

1:30 PM

**(PACRIM8-S26-008-2009) "If the Result is Correct, the Simulation Must Be ...?" (Invited)**

J. Kieffer\*, University of Michigan, USA

2:00 PM

**(PACRIM8-S26-009-2009) Random Close Packing from a Thermodynamic Standpoint (Invited)**

L. Woodcock\*, University of Manchester, United Kingdom

2:30 PM

**(PACRIM8-S26-010-2009) The role of molecular length and connectivity in the relaxation scenario of supercooled liquids (Invited)**

L. Börjesson\*, J. Mattsson, R. Bergman, P. Jacobsson, Chalmers University of Technology, Sweden

3:00 PM

Break

3:20 PM

**(PACRIM8-S26-011-2009) Forming low phonon glasses from Tellurium (Invited)**

J. Lucas\*, B. Bureau, X. Zhang, University of Rennes, France

3:50 PM

**(PACRIM8-S26-012-2009) Extension of the Angell plot and the fragility concept (Invited)**

C. Alba-Simionesco\*, CNRS, France

4:20 PM

**(PACRIM8-S26-013-2009) Single-parameter glass-forming liquids and their absence of decoupling (Invited)**

J. C. Dyre\*, Roskilde University, Denmark

4:40 PM

**(PACRIM8-S26-014-2009) Multicomponent Nano-Ensemble Thermoelectrics and the Phonon-Glass Electron-Crystal Paradigm\* (Invited)**

D. M. Gruen\*, Argonne National Laboratory, USA

5:00 PM

**(PACRIM8-S26-015-2009) Acoustic excitations and the boson peak in glasses – what can we learn from crystals? (Invited)**

A. Matic\*, Chalmers University of Technology, Sweden; G. Monaco, European Synchrotron Radiation Facility, France; C. Masciovecchio, Sincrotrone Trieste, Italy; L. Börjesson, Chalmers University of Technology, Sweden

5:20 PM

**(PACRIM8-S26-016-2009) Sub-Tg structural relaxation of a silica glass fiber (Invited)**

M. Tomozawa\*, Rensselaer Polytechnic Institute, USA; S. Ryu, Samsung Corning Precision Glass Co., Korea, South

5:40 PM

**(PACRIM8-S26-017-2009) Computer Simulation of Tetrahedra Network Forming Liquids/Glasses**

M. Hemmati\*, Arizona State University, Iran

## Symposium 27: International Fulrath Symposium on "New Frontiers of Ceramics for Sustainable Society": In Honor of Prof. Noboru Ichinose and Prof. Richard C. Bradt

### International Fulrath Symposium III

Room: Regency E

Session Chairs: Richard Bradt, The University of Alabama; Noboru Ichinose, Waseda University

1:20 PM

**(PACRIM8-S27-018-2009) Fabrication of highly textured ceramics by colloidal processing in strong magnetic field (Invited)**

Y. Sakka\*, NIMS, Japan

1:50 PM

**(PACRIM8-S27-019-2009) High-Thermal-Conductivity Filler for Polymer/Ceramic Composites (Invited)**

K. Watari\*, I. Yamada, S. Kume, AIST, Japan; I. Harada, K. Mitsuishi, Mitsui Chemicals, Japan

2:20 PM

**(PACRIM8-S27-020-2009) Crystallization Behaviors of Polymer-derived Amorphous Si-Ti(C)-N Ceramics (Invited)**

Y. Iwamoto\*, H. Ishihara, Nagoya Institute of Technology, Japan; K. Sato, T. Saito, Japan Fine Ceramics Center, Japan

2:50 PM

**(PACRIM8-S27-021-2009) Fabrication and Properties-Structure Correlations of Zirconia-based Multi-phase Nanocomposites Dispersed with CNTs and Nanoparticles**

T. Sekino\*, IMRAM, Tohoku University, Japan; T. Kusunose, ISIR, Tohoku University, Japan; S. Tanaka, IMRAM, Tohoku University, Japan; K. Niihara, EDI, Nagaoka University of Technology, Japan

3:10 PM

**(PACRIM8-S27-022-2009) Novel Single Crystal Materials for UV/VUV Optical Applications (Invited)**

K. Shimamura\*, E. A. Garcia Villora, National Institute for Materials Science, Japan; N. Ichinose, Waseda University, Japan

3:40 PM

**(PACRIM8-S27-023-2009) Preparation of Superparamagnetic Iron Alloy Nanosized Powders Prepared by Pulsed Wire Discharge (Invited)**

H. Suematsu\*, Y. Hayashi, Y. Tokoi, S. Ishihara, T. Suzuki, T. Nakayama, K. Niihara, Nagaoka University of Technology, Japan

4:10 PM

**Closing Remarks**

Richard Bradt

## Posters

Room: Regency C &amp; D

5:00 - 8:00 PM

**(PACRIM8-S01-P001-2009) Effect of Titania Addition on the Mechanical and Electrical Properties of c-ZrO<sub>2</sub>/TiO<sub>2</sub> Ceramics**

S. Tekeli, Gazi University, Technical Education Faculty, Besevler, Turkey; A. Akcimen, Gazi University, Maltepe, Turkey; M. Guru, Gazi University, Engineering and Architectural Faculty, Maltepe, Turkey; B. Aktas\*, Marmara University, Kadikoy, Turkey

**(PACRIM8-S01-P002-2009) Dynamic Mechanical Behaviour of Thick Alumina Layers with Thin Tunneled Interfaces**

F. O. Orgaz\*, Instituto de Ceramica y Vidrio CSIC, Spain; J. F. Fernández, Instituto de Ceramica y Vidrio, Spain; A. Varela, Instituto Nacional de Técnica Aeroespacial, Spain

**(PACRIM8-S02-P003-2009) First principle study of the dielectric properties of Ba(Mg<sub>1/3</sub>Ta<sub>2/3</sub>)O<sub>3</sub>**

Y. Dai, Z. Yao, M. Cao, Z. Yu, H. Hao, H. Huang, H. Liu\*, Wuhan University of Technology, China

**(PACRIM8-S03-P004-2009) Fabrication of Functionally Graded Electromagnetic Wave Absorber Ceramics Using Waste Materials**

H. Itoh\*, Y. Negami, Kitami Institute of Technology, Japan; J. Takahashi, Hokkaido University, Japan; M. Kishi, Hokkaido Institute of Technology, Japan; N. Fujiwara, R. Ogasawara, Hokkaido Railway Company, Japan

**(PACRIM8-S03-P005-2009) Novel Chemistry-Modification Approach for Synthesis of SiAlON from Fly Ash**

J. P. Kelly\*, J. R. Varner, W. M. Carty, V. R. Amarakoon, Kazuo Inamori School of Engineering, NYS College of Ceramics, at Alfred University, USA

**(PACRIM8-S03-P006-2009) Microstructure Control by Fluoride Addition in Low-Temperature Sintering of Apatite-Type Lanthanum Silicate**

J. Takahashi\*, H. Honda, T. Akashi, Hokkaido University, Japan; H. Itoh, Kitami Institute of Technology, Japan; I. Kimura, Niigata University, Japan

**(PACRIM8-S03-P007-2009) Effects of Cu Content and Zn/Mn Ratio on Electrical Resistivity of NTC Thermistors Produced from a Recycled Zn-Mn-O Powder**

M. Kishi\*, Hokkaido Institute of Technology, Japan; J. Takahashi, Hokkaido University, Japan; H. Itoh, Kitami Institute of Technology, Japan; S. Yoshioka, Hokkaido University, Japan; T. Akazawa, K. Sawayama, Hokkaido Industrial Research Institute, Japan

**(PACRIM8-S03-P008-2009) Preparation of New Zirconium Phosphates by Hydrothermal Reaction**

N. Kumada\*, J. Hinata, Y. Yonesaki, T. Takei, N. Kinomura, University of Yamanashi, Japan

**(PACRIM8-S04-P009-2009) Synthesis of a catalyst-loaded SiC material from Si-based polymer**

A. Idesaki\*, M. Sugimoto, M. Yoshikawa, Japan Atomic Energy Agency, Japan

**(PACRIM8-S04-P010-2009) Solid acid catalytic effects on the conversion of polydimethylsilane into polycarbosilane**

D. Shin, D. Riu\*, Y. Kim, S. Huh, KICET, Korea, South; H. Kim, Seoul National University, Korea, South; E. Park, KICET, Korea, South

**(PACRIM8-S04-P011-2009) Catalytic Activities of Tungsten Carbide-Silicon Carbide Nano-composite Web Prepared from the Electrospinning Process of Tungsten Nanoparticle/Polycarbosilane mixed solution**

D. Shin, D. Riu\*, S. Huh, E. Jin, E. Park, KICET, Korea, South; H. Kim, Seoul National University, Korea, South

**(PACRIM8-S04-P012-2009) Quasi-Solid-State Dye-Sensitized Solar Cells Based on Gel Electrolyte Containing the Different Size of TiO<sub>2</sub> Filler Particles**

E. Kim\*, H. Choi, Y. Kim, C. Whang, Inha University, Korea, South

**(PACRIM8-S04-P013-2009) Si(O)CN Porous Ceramics from Silazane**

I. Menapace\*, A. Hirsch, R. Riedel, Darmstadt Technical University, Germany; R. Hauser, Fraunhofer Institut Fertigungstechnik und Angewandte Materialforschung, Germany; C. Vakifahmetoglu, L. Biasetto, P. Colombo, University of Padova, Italy

**(PACRIM8-S04-P214-2009) Photoluminescence of Heat-Treated Silicon-Based Polymers**

I. Menapace\*, G. Mera, R. Riedel, TU Darmstadt, Germany

**(PACRIM8-S04-P014-2009) Synthesis of Ceramic Nano Fiber from Precursor Polymer by Single Particle Nano-fabrication Technique**

M. Sugimoto\*, A. Idesaki, M. Yoshikawa, Japan Atomic Energy Agency, Japan; S. Watanabe, S. Seki, Osaka University, Japan

**(PACRIM8-S04-P015-2009) Preparation of precursor-derived ceramics reinforced by single-walled carbon nanotubes**

N. Sun\*, Y. Li, B. Joachim, Max-Planck-Institut für Metallforschung und Institut für Nichtmetallische Anorganische Materialien, Universität Stuttgart, Germany

**(PACRIM8-S04-P016-2009) Electrohydrodynamic Forming of Ceramic Components from a Preceramic Polymer**

M. Nangrejo, University College London, United Kingdom; P. Colombo\*, E. Bernardo, University of Padova, Italy; U. Farook, Z. Ahmad, E. Stride, M. Edirisinghe, University College London, United Kingdom

**(PACRIM8-S04-P017-2009) Fabrication of Composites of Continuous Carbon Nanotube Fibers and Silicon Carbide**

X. Zhong, Y. Li\*, X. Yan, F. Zhou, F. Hou, School of Materials Science and engineering, Tianjin University, China

**(PACRIM8-S04-P018-2009) Preparation and Properties of Polycarbosilane-Derived SiC Fibers with Non-circular Cross-section**

Y. Wang\*, X. Liu, National University of Defense Technology, China

**(PACRIM8-S04-P019-2009) A facile fabrication of macroporous SiCN ceramic microchannel with polystyrene sacrificial spheres**

D. Kim, Z. Xiao\*, Chungnam National University, Korea, South

**(PACRIM8-S05-P020-2009) Rheological Properties of Highly Concentrated Ag Nanosol depended on Particle Size**

B. Ryu\*, Korea Research Institute of Chemical Technology, Korea, South; H. Song, S. Nham, Korea University, Korea, South; W. Lee, Y. Lee, S. Lee, Y. Choi, C. Kim, Korea Research Institute of Chemical Technology, Korea, South

**(PACRIM8-S05-P021-2009) Synthesis of Cu/Metal core-shell colloidal inks dispersed in organic solvent**

C. Kim\*, S. Lee, T. Chung, B. Ryu, Korea Research Institute of Chemical Technology, Korea, South

**(PACRIM8-S05-P022-2009) Enhanced Luminescent Properties of Eu<sup>2+</sup> doped Nitrogen-rich Ca- $\alpha$ -SiAlON Phosphor for White Light Emitting Diodes**

W. Park, Y. Song, D. Cho, D. Yoon\*, C. H. Chung, Sungkyunkwan University, Korea, South

**(PACRIM8-S05-P023-2009) Preparation of Blue-Ceramic Pigments by Reaction Bonding**

E. Rocha-Rangel\*, I. Villanueva-Baltazar, L. Tellez-Jurado, C. Gomez-Yañez, ESIQIE-IPN, Mexico

**(PACRIM8-S05-P024-2009) Continuous hydrothermal synthesis of nanometric oxides in supercritical conditions**

F. Bernard\*, N. Millot, M. Ariane, L. Saviot, D. Aymes, Universite de Bourgogne, France

**(PACRIM8-S05-P025-2009) The characterization of cuprous oxide powder prepared by atmospheric nitrogen plasma torch**

H. Chen\*, W. Cheng, M. Tsai, National Kaohsiung University of Applied Sciences, Taiwan

**(PACRIM8-S05-P026-2009) Low Temperature Synthesis and Characterization of Ba(Ti<sub>0.9</sub>Zr<sub>0.1</sub>)O<sub>3</sub> Powders**

C. Xiangbang, L. Hanxing\*, L. Zhuo, Y. Zhonghua, L. Yang, Y. Zhiyong, H. Hua, C. Minghe, Wuhan University of Technology, China

**(PACRIM8-S05-P027-2009) Enhancement of Photoluminescent intensity of Surface-Modified LaPO<sub>4</sub>:Ce<sup>3+</sup> Nanocrystals Prepared through Facile Wet Process**

M. Iwasaki\*, Kinki University, Japan; W. Park, Paichai University, Korea, South

**(PACRIM8-S05-P028-2009) Dispersion of carbon nanotubes by beads milling process and its application**

S. Yoshio\*, J. Tatami, T. Wakihara, K. Komeya, T. Meguro, K. Aramaki, Yokohama National University, Japan

**(PACRIM8-S05-P029-2009) Fabrication and Evaluation of Si<sub>3</sub>N<sub>4</sub> ceramics by adding Y<sub>2</sub>O<sub>3</sub>-HfO<sub>2</sub>-SiO<sub>2</sub>**

S. Hagimura\*, J. Tatami, T. Wakihara, K. Komeya, T. Meguro, Yokohama National University, Japan

**(PACRIM8-S05-P030-2009) Dispersion and Fluidity of Aqueous Aluminum Titanate Slurry by Addition of Titanate Aqueous Solution**

S. Obata\*, Y. Iwata, H. Yokoyama, Gifu Prefectural Ceramics Research Institute, Japan; O. Sakurada, M. Hashiba, Gifu University, Japan; Y. Takahashi, Daiken Chemical Company, Ltd, Japan

**(PACRIM8-S05-P031-2009) Fabrication of Silicon Nitride Sheets with Y<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>-MgO addition by Tape Casting and Pressureless Sintering**

T. Wasanapiarnpong\*, Y. Kaewtabut, S. Nilpairach, Chulalongkorn University, Thailand

**(PACRIM8-S06-P032-2009) Spark Plasma Sintering of nanostructured ceramic materials with potential magnetoelectricity**

A. Castro\*, C. Correas, R. Jimenez, T. Hungria, H. Amorin, J. Ricote, E. Vila, M. Alguero, Instituto de Ciencia de Materiales de Madrid, CSIC, Spain; J. Galy, Centre d'Elaboration de Matériaux et d'Etudes Structurales, CNRS, France

**(PACRIM8-S06-P033-2009) High-density hydroxyapatite ceramics fabricated by spark plasma sintering**

K. Nishio\*, M. Kezuka, Tokyo University of Science, Japan; T. Kineri, Tokyo University of Science, Yamaguchi, Japan; Y. Kogo, Tokyo University of Science, Japan

**(PACRIM8-S06-P034-2009) Effect of SiC structure on consolidation of HfB<sub>2</sub>/SiC composite**

Y. Kodera\*, Y. Kaneda, M. Ohyanagi, Ryukoku Univ., Japan; Z. A. Munir, University of California, Davis, USA

**(PACRIM8-S07-P035-2009) Gas Sensing Behaviour of Nanostructured CoSb<sub>2</sub>O<sub>6</sub> Prepared by a Colloidal Method**

C. R. Michel\*, H. Guillén Bonilla, A. H. Martínez Preciado, J. Rivera, Universidad de Guadalajara, Mexico

**(PACRIM8-S07-P036-2009) Synthesis and Photoluminescent Properties Eu doped ZnO Nanowires**

S. Kang, Sungkyunkwan University, Korea, South; S. Kim, Kumoh National Institute of Technology, Korea, South; D. Yoon\*, S. J. Suh, Sungkyunkwan University, Korea, South

**(PACRIM8-S07-P037-2009) Preparation and Their Mechanical Properties of Al<sub>2</sub>O<sub>3</sub>/Ti Composite Materials**

E. Rocha-Rangel\*, ESQIE-IPN, Mexico; E. Refugio-Garcia, J. G. Miranda-Hernandez, UAM-A, Mexico; E. Teres-Rojas, IMP, Mexico; S. D. De la Torre, CIITEC-IPN, Mexico

**(PACRIM8-S07-P038-2009) Integration of self-heated nanowires in ultra-low power consumption gas sensors**

J. Prades, R. Jimenez-Diaz, University of Barcelona, Spain; F. Hernandez-Ramirez\*, Electronic Nanosystems S.L., Spain; S. Barth, University of Cologne, Germany; A. Cirera, A. Romano-Rodriguez, University of Barcelona, Spain; S. Mathur, University of Cologne, Germany; J. Morante, University of Barcelona, Spain

**(PACRIM8-S07-P039-2009) Three-dimensional Analysis of Domain Structures Dependence on Annealing Temperature of PbTiO<sub>3</sub> Nanotube by Using Piezoelectric Force Microscope**

H. Choi\*, KAIST, Korea, South; Y. Kim, Max Planck Institute of Microstructure Physics, Germany; C. Bae, Y. Youn, Kookmin University, Korea, South; S. Hong, Argonne National Laboratory, USA; K. No, KAIST, Korea, South; H. Shin, Kookmin University, Korea, South

**(PACRIM8-S07-P040-2009) Synthesis and properties of proton conductive inorganic-organic hybrid membranes bound with phosphonic acid**

J. Umeda\*, M. Moriya, W. Sakamoto, T. Yogo, Nagoya University, Japan

**(PACRIM8-S07-P041-2009) Mechanical Behavior of Glass/Resin/Glass Laminates using in Nanoimprint Process**

K. Lee\*, E. Lee, S. Lim, J. I. Jeong, D. Shin, S. Jang, H. Yim, Kookmin University, Korea, South

**(PACRIM8-S07-P042-2009) Synthesis and characterization of BaTiO<sub>3</sub> nanoparticle/polymer hybrid via sol-gel process**

K. Mimura\*, M. Moriya, W. Sakamoto, T. Yogo, Nagoya university, Japan

**(PACRIM8-S07-P043-2009) Synthesis of superparamagnetic iron oxide nanoparticle/organic hybrid for medical applications**

K. Hayashi\*, M. Moriya, W. Sakamoto, T. Yogo, Nagoya University, Japan

**(PACRIM8-S07-P044-2009) Microwave-assisted polyol synthesis of Cu nanoparticles**

M. Raimondo\*, M. Blosi, ISTECC-CNR, Italy; S. Albonetti, C. Martelli, University of Bologna, Italy; G. Baldi, Cericol, Italy; M. Dondi, ISTECC-CNR, Italy

**(PACRIM8-S07-P045-2009) Effect of Polyvinylpyrrolidone on Morphology and Structure of In<sub>2</sub>O<sub>3</sub> Nanorods by Hydrothermal Synthesis**

T. Tseng, W. J. Tseng\*, National Chung Hsing University, Taiwan

**(PACRIM8-S07-P046-2009) The preparation and characterization of LiFePO<sub>4</sub>/MWCNTs cathode material for secondary lithium batteries**

Y. Feng\*, Y. Li, Tianjin University, China

**(PACRIM8-S07-P047-2009) Solvothermal Synthesis of Gadolinium Hydroxide and Oxide Nanostructures and their Potential for Biomedical Applications**

E. Hemmer\*, K. Soga, Tokyo University of Science, Japan; S. Mathur, University of Cologne, Germany; Y. Kohl, H. Thielecke, Fraunhofer Institute for Biomedical Engineering, Germany

**(PACRIM8-S08-P049-2009) Synthesis Process and Microstructure for Al<sub>2</sub>O<sub>3</sub>/TiC/Ti Functionally Materials**

E. Rocha-Rangel\*, D. Hernandez-Silva, ESQIE-IPN, Mexico; E. Refugio-Garcia, J. G. Miranda-Hernandez, UAM-A, Mexico; E. Terres-Rojas, IMP, Mexico

**(PACRIM8-S08-P050-2009) High potential of composites with carbon fibers and a self-sealing ceramic matrix in moist environments under high pressures at 600°C**

F. Rebillet\*, L. Quemard, A. Guette, Thermostructural Composites Laboratory, France; H. Tawil, C. Louchet-Pouillier, SPS, France



**(PACRIM8-S08-P051-2009) Quantification of higher SiC fiber oxidation rates in presence of B<sub>2</sub>O<sub>3</sub> under air**

F. Rebillat\*, E. Garitte, A. Guette, Thermostructural Composites Laboratory, France

**(PACRIM8-S08-P052-2009) Solution based routes to superior WC-Co cemented carbides, gradients and coatings**

G. Bestin\*, Åsa. Ekstrand, Uppsala University, Sweden; K. Jansson, Stockholm University, Sweden

**(PACRIM8-S08-P053-2009) Synthesis of Glass-Matrix Composites containing Aluminum-Borate Whiskers**

H. Lee\*, C. G. Pantano, PennState University, USA; P. Colombo, University of Padova, Italy

**(PACRIM8-S08-P054-2009) Electrical conductivity in multi-wall carbon nanotubes/Si<sub>3</sub>N<sub>4</sub> composites**

M. Belmonte\*, J. Gonzalez-Julian, P. Miranzo, I. Osendi, Y. Iglesias, A. C. Caballero, Institute of Ceramics and Glass (CSIC), Spain

**(PACRIM8-S08-P055-2009) Ceramic Matrix Composites Densification by Active Filler Impregnation Followed by Polymer Pyrolysis**

M. Dourges, S. Le Ber\*, L. Maillé, R. Pailler, A. Guette, Université de Bordeaux 1, France

**(PACRIM8-S08-P056-2009) Fabrication and properties of anorthite-based ceramic foams**

M. Hojamberdiev\*, L. Wondraczek, M. Sérgio da Silva Beltrão, University of Erlangen-Nuernberg, Germany

**(PACRIM8-S08-P057-2009) Thermodynamic Calculations of Zirconium-Silicon-Carbon System for Chemical Vapor Deposition Applications from SiCl<sub>4</sub>-ZrCl<sub>4</sub>-CH<sub>4</sub>-H<sub>2</sub>**

Q. Liu\*, L. Zhang, Y. Wang, L. Cheng, National Key Laboratory of Thermostructure Composite Materials, China

**(PACRIM8-S08-P058-2009) Mechanical properties of carbon fiber reinforced reaction bonded SiC composites**

S. Park\*, C. Kim, S. Yoon, H. Jung, Korea Inst. of Sci. &amp; Tech., Korea, South

**(PACRIM8-S08-P059-2009) Electronic Structure and Luminescent Properties of MgSiN<sub>2</sub> and LaSi<sub>3</sub>N<sub>5</sub> Ternary Nitrides**

Z. Lencses\*, L. Benco, Inst. Inorganic Chemistry, Slovak Academy of Sciences, Slovakia; Y. Zhou, National Institute of Advanced Industrial Science and Technology, Japan; D. Velic, M. Zitnansky, International Laser Center, Slovakia; P. &lt;math&gt;\langle k-90b3 \rangle&lt;/math&gt; Sajgalik, Inst. Inorganic Chemistry, Slovak Academy of Sciences, Slovakia

**(PACRIM8-S08-P060-2009) Anelastic Behavior Modeling of SiC Whisker Reinforced Al<sub>2</sub>O<sub>3</sub>**

J. Kong\*, N. Provasas, D. S. Wilkinson, McMaster University, Canada

**(PACRIM8-S09-P061-2009) How to assess thermodynamic data of gaseous hydroxides from volatilization studies?**

E. Courcot\*, F. Rebillat, F. Teyssandier, Thermostructural Composites Laboratory, France

**(PACRIM8-S09-P062-2009) Thermochemical stability of rare earth sesquioxides under a moist environment at high temperature**

E. Courcot\*, F. Rebillat, F. Teyssandier, Thermostructural Composites Laboratory, France

**(PACRIM8-S09-P063-2009) Preliminary study of twin filtered-cathodic-arc discharge for preparation of TiAlCrSi nitride and carbide thin films**

H. Takikawa\*, T. Mashiki, T. Yanagita, H. Tanoue, S. Oke, Y. Suda, Toyohashi University of Technology, Japan; Y. Hasegawa, M. Taki, Onward Ceramic Coating Co., Ltd., Japan; T. Ishikawa, Hitachi Tool Engineering, Ltd, Japan

**(PACRIM8-S09-P064-2009) Development of Sol-Gel Nanostructured Ceramic Coatings on Structural and Light Metal Alloys**

I. B. Singh\*, Council of Scientific &amp; Industrial Research, India; G. Ruhi, Council of Scientific &amp; Industrial Research, India; O. P. Modi, Council of Scientific &amp; Industrial Research, India

**(PACRIM8-S09-P065-2009) Diamond synthesis on HPHT diamond substrate using CVD**

M. Yoshihara\*, Y. Sakamoto, M. Takaya, Chiba Institute of Technology, Japan

**(PACRIM8-S09-P066-2009) Effects of H<sub>2</sub> addition on preparation of carbon nitride using microwave plasma CVD**

M. Inoue\*, Y. Sakamoto, M. Takaya, Chiba Institute of Technology, Japan

**(PACRIM8-S09-P067-2009) Thermal property of nanocrystalline diamond films deposited by surface wave plasma CVD**

M. Ishihara\*, K. Tsugawa, J. Kim, M. Hasegawa, Y. Koga, M. Akoshima, S. H. Firoz, T. Baba, National Institute of Advanced Industrial Science and Technology, Japan; K. Ishikawa, PicoTherm Corporation, Japan

**(PACRIM8-S09-P068-2009) Multifunctional Thermo-Structural Coatings with Embedded Sensors for Extreme Environment Applications**

S. Sampath\*, State University of New York at Stony Brook, USA

**(PACRIM8-S09-P069-2009) TiO<sub>2</sub> thin films as a candidate material for transparent electronic devices**

S. Kim\*, H. Seok, M. Lee, M. Ji, B. Choi, Korea Institute of Ceramic Engineering &amp; Technology, Korea, South

**(PACRIM8-S09-P070-2009) The Influence of Substrate Temperature on MgF<sub>2</sub>/ZnS double-layer antireflection coating**

S. Jung\*, Seoul National University, Korea, South; J. Yang, S. Kim, Y. Kim, Korea Institute of Science and Technology, Korea, South; S. Yoo, Seoul National University, Korea, South

**(PACRIM8-S09-P071-2009) Manufacture of p-type ZnO thin film by co-sputtering of Zn and Li<sub>2</sub>CO<sub>3</sub> targets simultaneously**

Y. Lu\*, National University of Tainan, Taiwan; S. Wu, S. Tsai, National Cheng Kung University, Taiwan

**(PACRIM8-S09-P072-2009) Chromic properties and structural analyses of WO<sub>3</sub> thin films prepared by sol-gel process**

Y. Yamaguchi\*, H. Iida, Tokyo University of Science, Japan; T. Kineri, Tokyo University of Science, Yamaguchi, Japan; M. Fujimoto, H. Mae, Yamaguchi Prefectural Industrial Technology Institute, Japan; A. Yasumori, K. Nishio, Tokyo University of Science, Japan

**(PACRIM8-S09-P073-2009) The Effect of Deposition Temperature on its Microstructure and Mechanical Property of LPCVD-ZrC**

C. Jung\*, J. Park, M. Cho, J. Park, Korea Atomic Energy Research Institute, Korea, South

**(PACRIM8-S10-P074-2009) Porosity enhancement of geopolymers by alkali-degradable PLA fibers**

A. Imase\*, T. Isobe, Y. Kameshima, A. Nakajima, K. Okada, Tokyo Institute of Technology, Japan

**(PACRIM8-S10-P075-2009) Comparison of aqueous leachability tests for metakaolin-based geopolymers of molar ratios Si/Al = 2, Na/Al = 1 containing Cs and Sr**

Z. Aly, M. Cannio, D. Perera\*, L. Vance, ANSTO, Australia; C. Leonelli, I. Lancellotti, L. Barbieri, E. Kamesu, University of Modena and Reggio Emilia, Italy

**(PACRIM8-S10-P076-2009) Studies on Calcium Carbonate Nucleation of In-situ Process in Paper-making and detachment of that from pulp**

M. Ryu\*, Korea Institute of Geoscience and Mineral Resources, Korea, South; H. Kim, Seoul National University, Korea, South; K. You, J. Ahn, Korea Institute of Geoscience and Mineral Resources, Korea, South

**(PACRIM8-S10-P077-2009) Synthesis of zeolite-X from waste porcelain using alkali fusion**

T. Wajima\*, Akita University, Japan; Y. Ikegami, Saga University, Japan

**(PACRIM8-S11-P078-2009) Processing of lead-free, BiScO<sub>3</sub>-derived piezoelectric materials by mechanochemical methods**

A. Castro\*, A. Miquel, I. Martinez, M. Alguero, T. Hungria, Instituto de Ciencia de Materiales de Madrid, CSIC, Spain

**(PACRIM8-S11-P079-2009) Synthesis and Characterization of Fluorine-Modified Piezo- and Ferroelectric Ceramics of the K<sub>0.5</sub>Na<sub>0.5</sub>NbO<sub>3</sub>-Type**

A. Gronotte\*, Z. Ye, Simon Fraser University, Canada

**(PACRIM8-S11-P080-2009) Structure of Aerosol Deposited Alumina on Plastics**

A. Iwata\*, J. Akedo, National Institute of Advanced Industrial Science and Technology, Japan

**(PACRIM8-S11-P081-2009) Study of vibratory of porous PZT piezoelectric ceramics by impulse method**

B. Khaled\*, University of Boumerdes, Algeria; A. Azzedine, University, Algeria; F. Gilbert, INSA, France

**(PACRIM8-S11-P082-2009) Effect of Heat Treatment on the Cation Distribution of Magnetostrictive Ceramic CoFe<sub>2</sub>O<sub>4</sub>**

C. I. Nlebedim\*, N. Ranvah, P. I. Williams, Y. Melikhov, J. E. Snyder, D. C. Jiles, A. J. Moses, School of Engineering, Cardiff University, United Kingdom

**(PACRIM8-S11-P083-2009) Preparation of high-quality Sr<sub>2</sub>FeMoO<sub>6</sub> ceramics and its microstructure characterization, magnetoresistivity, and electrical conduction behavior**

C. Yang\*, T. Fang, National Cheng Kung University, Taiwan

**(PACRIM8-S11-P084-2009) Seeding effect of SrBi<sub>2</sub>Ta<sub>2</sub>xO<sub>9</sub> thin buffer layer on the crystallization and electric properties of SrBi<sub>2</sub>Ta<sub>2</sub>O<sub>9</sub> thin films**

C. Hu\*, F. Hsu, National Tsing Hua Univ., Taiwan; C. Leu, National University of Kaohsiung, Taiwan; C. Leu, National Cheng Kung University, Taiwan

**(PACRIM8-S11-P085-2009) Effect of Mn<sub>2</sub>O<sub>3</sub> Addition on the Microstructure and Electric Properties of Lead-Free Ba(Sn<sub>0.02</sub>Ti<sub>0.98</sub>)O<sub>3</sub> - (Na<sub>0.5</sub>K<sub>0.5</sub>)NbO<sub>3</sub> Ceramics**

C. Wang\*, Nan-Jeon Institute of Technology, Taiwan

**(PACRIM8-S11-P086-2009) Relaxor Behavior and Electric Properties of Lead-Free Ba(Sn,Ti)O<sub>3</sub> Ceramics**

C. Wang\*, J. Wang, Nan-Jeon Institute of Technology, Tainan, Taiwan 737, R.O.C., Taiwan

**(PACRIM8-S11-P087-2009) Effect of La<sub>2</sub>O<sub>3</sub> Addition on the Phase Transitional Behavior and Electric Properties of Lead-Free BaTiO<sub>3</sub>-based Ceramics**

C. Wang\*, Nan-Jeon Institute of Technology, Tainan, Taiwan 737, R.O.C., Taiwan

**(PACRIM8-S11-P088-2009) Processing and Electrical Properties in the Pb(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>-Pb(Yb<sub>1/2</sub>Nb<sub>1/2</sub>)O<sub>3</sub> -Pb(Zr,Ti)O<sub>3</sub> System**

C. Duran\*, E. Akca, Gebze Institute of Technology, Turkey; I. Ayan, C. Ozturk, MSE Teknoloji Ltd. Sti., Turkey; H. Yilmaz, Gebze Institute of Technology, Turkey

**(PACRIM8-S11-P090-2009) Synthesis and Characterization of the Pb(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>-PbTiO<sub>3</sub>-Bi(Zn<sub>1/2</sub>Ti<sub>1/2</sub>)O<sub>3</sub> Ternary Solid Solution System**

H. N. Tailor\*, M. Leung, Z. Ye, Simon Fraser University, Canada

**(PACRIM8-S11-P091-2009) Effects of reducing atmospheres on the dielectric properties, reliability, and microstructures of BaTiO<sub>3</sub>-based X8R multilayer ceramic capacitors**

H. Chung\*, T. Fang, National Cheng Kung University, Taiwan; T. Jain, Darfon Electronic Corporation, Taiwan

**(PACRIM8-S11-P092-2009) Room Temperature Gelation of Nanosuspension for Artificially Engineered Functional Materials**

H. Abe\*, Osaka University, Japan; J. Akedo, AIST, Japan

**(PACRIM8-S11-P093-2009) Fabrication of Ferroelectric NaNbO<sub>3</sub> Thin Films on (001), (110), and (111) SrTiO<sub>3</sub> Substrates by Pulsed Laser Deposition**

H. Sakurai\*, S. Yamazoe, Ryukoku University, Japan; H. Adachi, Panasonic Corporation, Japan; T. Wada, Ryukoku University, Japan

**(PACRIM8-S11-P094-2009) Direct Measurements of the Dielectric Properties of PZT Particle Sample**

H. Ogiso\*, National Institute of Advanced Industrial Science, Japan; M. Yoshida, National Institute of Advanced Industrial Science, Japan; J. Akedo, National Institute of Advanced Industrial Science, Japan

**(PACRIM8-S11-P095-2009) Investigation of High Temperature sintered Thick Film Resistors**

H. Chi-Shiung\*, Y. Yang, C. Chou, National United University, Taiwan; W. Lin, W. Wu, INPAQ Technology Co. Ltd., Taiwan

**(PACRIM8-S11-P096-2009) Near field piezoelectric, acoustic and thermal response of electronic ceramic microstructures by scanning probe microscopy**

H. Zeng\*, K. Zhao, H. Song, S. Hui, G. Li, Q. Yin, Shanghai Institute of Ceramics, China

**(PACRIM8-S11-P097-2009) Development of Metal-based Piezoelectric Optical MEMS Scanning Devices**

J. Park\*, J. Akedo, National Institute of Advanced Industrial Science and Technology (AIST), Japan

**(PACRIM8-S11-P098-2009) Effect of CuO on Microstructures and Electromechanical Properties of 0.4Pb(Mg<sub>1/3</sub>Nb<sub>2/3</sub>)O<sub>3</sub>-0.25PbZrO<sub>3</sub>-0.35PbTiO<sub>3</sub> Ceramics**

J. Song\*, M. Kim, S. Jeon, S. Jeong, I. Kim, Korea Electrotechnology Research Institute, Korea, South; Y. Oh, Kyungnam University, Korea, South

**(PACRIM8-S11-P099-2009) Properties of Pt/SrTiO<sub>3</sub>:Nb Junctions in Terms of Resistivity Switching Behavior**

J. Li\*, H. Ohkushi, T. Nakagawa, H. Haneda, I. Sakaguchi, National Institute for Materials Science, Japan; R. Matsuoka, Kyushu University, Japan; N. Ohashi, National Institute for Materials Science, Japan

**(PACRIM8-S11-P100-2009) Dielectric Properties of Bi<sub>1.5</sub>Zn<sub>1.0</sub>Nb<sub>1.5</sub>O<sub>7</sub> (BZN) Thin Films on Flexible Substrate Fabricated at Room Temperature**

J. Ryu\*, K. Kim, J. Choi, B. Hahn, D. Park, W. Yoon, B. Lee, Korea Institute of Materials Science, Korea, South; C. Park, Pukyong National University, Korea, South

**(PACRIM8-S11-P101-2009) Development of Perovskite-type Stannate Phosphors and the Electroluminescence Properties**

K. Ueda\*, Y. Shimizu, Kyushu Institute of Technology, Japan

**(PACRIM8-S11-P102-2009) Room temperature synthesis of vanadate luminescent materials**

K. Toda\*, A. Toda, K. Uematsu, T. Ishigaki, M. Sato, Niigat University, Japan

**(PACRIM8-S11-P103-2009) Fabrication of field-effect transistors based on Fe<sup>3+</sup>-doped titania**

L. Liau\*, W. Chou, Yuan Ze University, Taiwan

**(PACRIM8-S11-P104-2009) MnO<sub>2</sub> doping effect on structural and dynamical properties of in ferroelectric CaBi<sub>4</sub>Ti<sub>4</sub>O<sub>15</sub> ceramics**

M. S. Islam\*, J. Kano, S. Kojima, University of Tsukuba, Japan; Q. R. Yin, Chinese Academy of Sciences, China

**(PACRIM8-S11-P105-2009) New Piezoelectric Materials for Impact Driven High Voltage Generators**

M. Pan\*, B. A. Bender, E. P. Gorzkowski, Naval Research Laboratory, USA

**(PACRIM8-S11-P106-2009) Synthesis and Electrical Properties of NaNbO<sub>3</sub>-LiNbO<sub>3</sub>-BaTiO<sub>3</sub> Lead-Free Piezoelectric Ceramics**

R. Aoyagi\*, R. Rinaldi, M. Iwata, M. Maeda, Nagoya Institute of Technology, Japan

**(PACRIM8-S11-P107-2009) Local Structural Analysis of (Na<sub>0.5</sub>K<sub>0.5</sub>)NbO<sub>3</sub>-Based Lead-Free Piezoelectric Ceramics by XAFS**

S. Yamazoe\*, M. Fukada, T. Wada, Ryukoku University, Japan

**(PACRIM8-S11-P108-2009) Formation of Phosphorescent Thick Film at Room Temperature Using Aerosol Deposition**

S. Baba\*, J. Akedo, National Institute of Advanced Industrial Science and Technology, Japan

**(PACRIM8-S11-P109-2009) Optimization of the Synthesis Parameters for the Preparation of Bi<sub>12</sub>SiO<sub>20</sub> Thin Films Using a Sol-gel Method**

S. Kunej\*, Tokyo Institute of Tehnology, Japan and Jozef Stefan Institute, Slovenia; A. Veber, D. Suvorov, Jozef Stefan Institute, Slovenia

**(PACRIM8-S11-P110-2009) Effects of multi-layered insulating layers on the dielectric properties of CaCu<sub>3</sub>Ti<sub>4</sub>O<sub>12</sub> films on Pt/TiO<sub>2</sub>/SiO<sub>2</sub>/Si substrates fabricated by pulsed-laser deposition**

S. Lee\*, S. Yoo, seoul national university, Korea, South

**(PACRIM8-S11-P111-2009) Preparation mechanism of lead-free (Na,K)NbO<sub>3</sub> fine powder by a modified solid state reaction method**

T. Kawawaki\*, T. Wada, Ryukoku University, Japan

**(PACRIM8-S11-P112-2009) Formation of Si-microstructure in MoSi<sub>2</sub>-Si-composite Thin Film and the Oxidation-resistance**

T. Hayashi\*, M. Sato, Y. Sato, S. Yoshikado, Doshisha University, Japan

**(PACRIM8-S11-P113-2009) Stress- and Temperature-induced Raman Scattering Analysis of Lead-free (Li,Na,K)NbO<sub>3</sub> Piezoceramics**

T. Sumi\*, K. Kakimoto, I. Kagomiya, Nagoya Institute of Technology, Japan

**(PACRIM8-S11-P114-2009) Kinetics and Mechanism of Formation of GaN from β-Ga<sub>2</sub>O<sub>3</sub> by NH<sub>3</sub>**

T. Sakai\*, M. Takahashi, H. Kiyono, S. Shimada, Hokkaido Univertion, Japan

**(PACRIM8-S11-P115-2009) Structure analysis and dielectric properties of Cr-, Ce-, (Cr,Ce)-doped Sr<sub>0.5</sub>Ba<sub>0.5</sub>Nb<sub>2</sub>O<sub>6</sub> ceramics**

T. Fang\*, H. Chung, National Cheng Kung University, Taiwan

**(PACRIM8-S11-P116-2009) Influence of Rare Earth Additives on Microstructure and Ferroelectric Characteristics of BaTiO<sub>3</sub> Ceramics**

V. Mitic\*, Univeristy of Nis, Serbia; V. Pavlovic, University of Belgrade, Serbia; V. Paunovic, L. Zivkovic, Univeristy of Nis, Serbia; B. Jordovic, University of Kragujevac, Serbia; M. Miljkovic, University of Nis, Serbia

**(PACRIM8-S11-P117-2009) Dynamic characterization of oxygen deficiency in semiconductive oxides with optical and electrical approaches**

Y. Matsushima\*, K. Maeda, Tokyo University of Agriculture and Technology, Japan

**(PACRIM8-S11-P118-2009) Crystal Structure Dependence of Electrical Properties of Li<sub>0.02</sub>(K<sub>1-x</sub>Na<sub>x</sub>)<sub>0.98</sub>NbO<sub>3</sub> Ceramics**

E. Kim\*, Kyonggi University, Korea, South; S. Seo, Kyonggi University, Korea, South; J. Cho, B. Kim, Korea Institute of Ceramic Engineering and Technology, Korea, South

**(PACRIM8-S11-P215-2009) Effects of Layered Configuration of Ormosil-Modified Electrodes over the Electrochemical Oxidation of Hydrogen Peroxide**

V. Singh\*, P. C. Pandey, Institute of Technology, Banaras Hindu University, India

**(PACRIM8-S11-P216-2009) Selective Oxidation of Dopamine over Chemically Sensitized Silicates Modified Electrodes**

D. S. Chauhan\*, P. C. Pandey, Institute of Technology, Banaras Hindu University, India

**(PACRIM8-S12-P119-2009) Effect of ZrO<sub>2</sub>-NiO on the Microstructure and Microwave Dielectric Properties of Complex Perovskite Ba(Zn<sub>1/3</sub>Ta<sub>2/3</sub>)O<sub>3</sub>**

S. Kang, Korea Institute of Science and Technology, Korea, South; T. Kim, School of Advanced Materials Engineering, Andong National University, Korea, South; H. Shin, Kookmin University, Korea, South; S. Kim, Expantech Co., Ltd, Korea, South; S. Choi, J. Kim\*, Korea Institute of Science and Technology, Korea, South

**(PACRIM8-S13-P121-2009) Hybrid Silica Aerogel Composite Synthesis from MTEOS and TEOS**

C. Kim\*, A. Jang, D. Riu, Korea Institute of Ceramic Eng. &amp; Tech, Korea, South; D. Suh, Hanyang Univ., Korea, South

**(PACRIM8-S13-P122-2009) Electrical and Thermal Via Paste Compositions for Non-Sintered Ceramic Hybrid Substrate**

S. Park\*, W. Lee, N. Kang, Korea Electronics Technology Institute, Korea, South; D. Kim, Hanyang University, Korea, South

**(PACRIM8-S14-P123-2009) Microstructure of Sm-doped ceria interlayer and the impedance of LaSrCoFeO<sub>3</sub>/SDC/LAMOX half cell**

D. Tsai\*, H. Chang, Y. Chen, W. Chung, National Taiwan Univ. Sci. Tech, Taiwan

**(PACRIM8-S14-P124-2009) Vibrational spectroscopy studies of mullite-type Bi<sub>2</sub>Ga<sub>2</sub>O<sub>7</sub>**

E. Libowitzky, A. Berán, University of Vienna - Geocenter, Austria; C. Pecharroman, Instituto de Ciencia de Materiales de Madrid, CSIC, Spain; M. Burianek, M. Mühlberg, H. Schneider\*, University of Cologne, Germany

**(PACRIM8-S14-P125-2009) Enhancement of Oxygen Permeation, Electrical Property and Thermal Stability through New (La<sub>1-x</sub>Sr<sub>x</sub>)(Mn<sub>0.85</sub>Fe<sub>0.05</sub>Co<sub>0.05</sub>Ni<sub>0.05</sub>)O<sub>3+δ</sub> (0 ≤ x ≤ 0.4) Perovskite Structure**

E. Kim\*, S. Yoo, Y. Kim, C. Whang, Inha University, Korea, South

**(PACRIM8-S14-P126-2009) Hydrogen production with a zeolite membrane at an intermediate temperature**

H. Inokawa\*, S. Nishimoto, M. Miyake, Okayama university, Japan; M. Matsuda, Kumamoto university, Japan; S. Goto, Y. Nakano, NICHIRIN CO., LTD., Japan

**(PACRIM8-S14-P127-2009) Conductivity and Structure of Ba<sub>0.5</sub>Sr<sub>0.5</sub>Co<sub>0.8</sub>Fe<sub>0.2</sub>O<sub>3-δ</sub> Cathode Prepared by Citrate-EDTA Complexing Method**

I. Hung\*, C. Liang, Y. Li, P. Kao, Yuan Ze University, Taiwan

**(PACRIM8-S14-P128-2009) GIXRD-analysis of the Structure of the (001)-surface of Bi<sub>2</sub>Ga<sub>4</sub>O<sub>9</sub>**

K. H. Gies\*, RU Bochum, Germany; J. Toremel, ICMAB CSIC, Spain; A. Pareek, U. Magdans, J. Schreuer, RU Bochum, Germany; M. Mühlberg, ICMAB CSIC, Spain

**(PACRIM8-S14-P129-2009) Determination of the optimal heating rates for the YSZ electrolyte fabrication during the sintering process**

L. Liou\*, R. Wu, Yuan Ze University, Taiwan

**(PACRIM8-S14-P130-2009) Glass-ceramic and hybrid seals for solid oxide fuel cells (SOFC)**

A. Abarquero, A. Durán, M. Pascual\*, Instituto de Cerámica y Vidrio (CSIC), Spain

**(PACRIM8-S14-P131-2009) Fabrication of Hollow Glass Microspheres from Waste Amber Cullet for Hydrogen Storage**

S. R. Shetty\*, M. M. Hall, Alfred University, USA

**(PACRIM8-S14-P132-2009) Humidified hydrogen gas sealing properties of glass/ceramic composite at RT-650°C**

S. Suda\*, M. Matsumiya, C. Iwai, Y. Nakamura, Japan Fine Ceramics Center, Japan

**(PACRIM8-S14-P133-2009) Crystallographic Characterization of Rare-Earth Hafnates**

T. J. Anderson\*, R. Ubc, Boise State University, USA

**(PACRIM8-S14-P134-2009) Response properties for hydrogen gas of Pt particles dispersed WO<sub>3</sub> thin films prepared by sol-gel process**

T. Kineri\*, H. Goto, Tokyo University of Science, Yamaguchi, Japan; M. Fujimoto, H. Mae, Yamaguchi Prefectural Industrial Technology Institute, Japan; K. Nishio, Tokyo University of Science, Japan

**(PACRIM8-S14-P135-2009) Microstructure analysis of the YSZ/Ni anode deposited by plasma spraying in SOFC**

Y. Wu\*, Y. Yang, X. Wang, National Taipei University of Technology, Taiwan

**(PACRIM8-S14-P136-2009) Fabrication of plasma sprayed porous Ni/YSZ anode by introducing the pore former in the feedstock powder**

Y. Yang\*, S. Wang, National Taipei University of Technology, Taiwan

**(PACRIM8-S14-P137-2009) Evaluations of thermal residual strains in the atmospheric plasma sprayed LDC/Ni-LSGM-LSCF solid oxide fuel cells**

Y. Yang\*, National Taipei University of Technology, Taiwan; C. Hwang, C. Tsai, Institute of Nuclear Energy Research, Taiwan

**(PACRIM8-S15-P138-2009) Thermoelectric Properties of the Ag-(Ga,In)-Te with Low Thermal Conductivity**

A. Charoenphakdee\*, Osaka University, Japan; A. Charoenphakdee, Rajamangala University of Technology Suvarnabhumi, Thailand; K. Kurosaki, H. Muta, S. Yamanaka, Osaka University, Japan

**(PACRIM8-S15-P139-2009) Thermoelectric and Mechanical Property Characterizations of Nanocarbon Ensembles**

D. Singh\*, J. L. Routbort, P. Bruno, R. Arenal, M. Xie, D. Gruen, Argonne National Lab, USA

**(PACRIM8-S15-P140-2009) Syntheses and properties of n-type doped SrTiO<sub>3</sub> bulk materials**

Y. Cui\*, University of Waterloo, Canada; J. R. Salvador, J. Yang, General Motors Research &amp; Development Center, USA; H. Wang, Oak Ridge National Laboratory, USA; G. Amow, Defence Research and Development Canada, Canada; H. Kleinke, University of Waterloo, Canada

**(PACRIM8-S16-P141-2009) Electrochemical Properties of LiMnPO<sub>4</sub> Coated with Carbon by High Energy Milling for Lithium Ion Batteries**

C. Kim\*, S. Hwang, B. Cho, Korea Institute of Science and Technology, Korea, South

**(PACRIM8-S16-P142-2009) Supercapacitor Properties of Carbon/Ni aerogel composite electrode synthesized by Nickel solution dipping method**

C. Kim\*, A. Jang, D. Riu, S. Huh, Korea Institute of Ceramic Eng. &amp; Tech, Korea, South; D. Suh, Hanyang Univ, Korea, South

**(PACRIM8-S16-P143-2009) Using a Focused Ion Beam and Modeling to Probe Li-ion Battery Electrode Architectures**

E. Gorzkowski\*, D. Rowenhorst, A. Stux, Naval Research Lab, USA; D. Stephenson, D. Wheeler, Brigham Young University, USA

**(PACRIM8-S16-P144-2009) Dielectric Breakdown Strength and Graceful Failure of Glass Capacitor**

H. Lee\*, N. Smith, S. Perini, E. Furman, M. Lanagan, C. G. Pantano, PennState University, USA; S. Kwon, TRS Technologies, Inc., USA

**(PACRIM8-S16-P145-2009) Electrochemical Properties of SiCN Ceramics As the Anode in Li-Ion Batteries**

D. Su, Y. Li\*, J. Jin, F. Hou, Tianjin University, China

**(PACRIM8-S17-P146-2009) Skin damage by the different shape of photocatalyst nanoparticles**

E. Watanabe\*, K. Nishizawa, T. Miki, H. Taoda, National Institute of Advanced Industrial Science and Technology, Japan

**(PACRIM8-S17-P147-2009) Influence of calcination temperature on the photocatalytic activity of porous TiO<sub>2</sub> film**

T. Miki\*, K. Nishizawa, E. Watanabe, H. Taoda, National Institute of Advanced Industrial Science and Technology (AIST), Japan

**(PACRIM8-S17-P148-2009) Investigation of HPA / TiO<sub>2</sub> hybrid catalyst activity**

T. Koike\*, A. Nakajima, S. Yanagida, T. Isobe, Y. Kameshima, K. Okada, Tokyo institute of technology, Japan

**(PACRIM8-S18-P149-2009) CH<sub>4</sub> oxidation on Nd-substituted LaCoO<sub>3</sub>**

H. Taguchi\*, Okayama University, Japan

**(PACRIM8-S18-P150-2009) Structural Properties and PTCR Characteristics of Lead-free Nb<sub>2</sub>O<sub>5</sub>-doped BaTiO<sub>3</sub>-(Na<sub>0.5</sub>K<sub>0.5</sub>)NbO<sub>3</sub> Ceramics**

J. Paik\*, C. Kim, Y. Jeong, Y. Lee, Korea Institute of Ceramic Engineering &amp; Technology, Korea, South

**(PACRIM8-S18-P151-2009) Internal Friction of Rare Earth doped Zirconia Ceramics**

M. Ozawa\*, Nagoya Institute of Technology, Japan

**(PACRIM8-S18-P152-2009) Desorption Behavior of VOC on some Aluminas and Zeolites**

M. Ozawa\*, Nagoya Institute of Technology, Japan

**(PACRIM8-S18-P153-2009) Adsorption of Lead and Cadmium Ions from Aqueous Solution with Coal Fly Ash-Derived Zeolite/Sepiolite Composite**

Y. Suyama\*, S. Masuda, F. Miyaji, Shimane University, Japan

**(PACRIM8-S18-P154-2009) Effect of SiC Filler on Properties of Polysiloxane-Derived Porous SiC Ceramics**

S. Chae\*, Y. Kim, University of Seoul, Korea, South; I. Song, H. Kim, Korea Institute of Materials Science, Korea, South

**(PACRIM8-S18-P155-2009) Effect of Additive Composition on Strength of Porous Silicon Carbide Ceramics**

J. Eom\*, Y. Kim, University of Seoul, Korea, South

**(PACRIM8-S19-P156-2009) Packing in Alkali and Alkaline-Earth Borosilicate Glass Systems**

S. Feller, A. O'Donovan-Zavada\*, S. Bista, M. Affatigato, M. Franke, T. Mullenbach, Coe College, USA

**(PACRIM8-S19-P157-2009) A New Laboratory for Microwave and Radio Frequency Processing at ENEA**

M. Poli, A. Colaiuda, N. Voukelatou, G. Gherardi, R. Tinti, ENEA, Ente per le Nuove Tecnologie, l'Energia e l'Ambiente, Italy; E. Kamseu, P. Veonesi, G. Pellacani, C. Leonelli\*, University of Modena and Reggio Emilia, Italy; M. La Robina, ENEA, Ente per le Nuove Tecnologie, l'Energia e l'Ambiente, Italy; ENEA, Ente per le Nuove Tecnologie, l'Energia e l'Ambiente, Italy; ANSTO, Australia, ENEA, Ente per le Nuove Tecnologie, l'Energia e l'Ambiente, Italy; ANSTO, Australia; EXTREME SCIENCE Pty. Ltd., Australia

**(PACRIM8-S19-P158-2009) Methods for the Assessment of Corrosion Risk in Refractory Materials during Vitrification Process**

D. Boccaccini, M. Cannio, M. Romagnoli, P. Veronesi, C. Leonelli\*, University of Modena and Reggio Emilia, Italy; A. Boccaccini, Imperial College London, United Kingdom

**(PACRIM8-S19-P159-2009) Chemical Durability of Heavy Metals Sorbent Stabilised by Microwave Vitrification**

M. Kovacova\*, S. Cuvanova, M. Lovas, S. Jakabsky, Slovak Academy of Sciences, Slovakia; C. Leonelli, University of Modena and Reggio Emilia, Italy

**(PACRIM8-S19-P160-2009) Mechanisms of Phase Formation in the Vitrification of Savannah River Site SB4 HLW Sludge Surrogate with High Iron and Aluminum Contents**

O. Stefanovsky\*, S. Stefanovsky, SIA Radon Institute, Russia; A. A. Akatov, Institute of Technology, Russia; J. Marra, Savannah River National Laboratory, USA

**(PACRIM8-S20-P161-2009) Application of the sol-gel technique for the fabrication of novel dental glass-ceramics**

X. Chatzistavrou, Imperial College London, United Kingdom; E. Hatzistavrou, E. E. Kontonasaki, K. Paraskevopoulos, Aristotle University of Thessaloniki, Greece; A. R. Boccaccini\*, Imperial College London, United Kingdom

**(PACRIM8-S20-P162-2009) Crystalline Phase Controlled Synthesis of TiO<sub>2</sub> by Using Peroxo-titanate Complex Solutions**

K. Katagiri\*, N. Kobayashi, K. Koumoto, Nagoya University, Japan

**(PACRIM8-S20-P163-2009) Influence of Microstructural Parameters on Biaxial Strength of Hydrothermally Prepared Hydroxyapatite Nano-Powders**

K. Lee\*, I. Ryu, S. Kim, D. Kim, Sejong university, Korea, South; J. Han, Seoul National University, Korea, South; M. Lee, Korea Institute of Ceramics, Korea, South

**(PACRIM8-S20-P164-2009) Hard Template Synthesis of Mesoporous Hydroxyapatite Materials for Controlled Protein Release**

J. Möller, P. Dibandjo\*, R. Gadiou, K. Anselme, C. Vix-Guterl, Institut de Chimie des Surfaces et Interfaces (ICSI), CNRS UPR 9069, France

**(PACRIM8-S20-P165-2009) Cellular response on sodium and magnesium ions-codoped beta-tricalcium phosphate ceramics**

R. Miyamoto\*, Chiba institute of technology, Japan; T. Yamada, ISSP, Univ. of Tokyo, Japan; K. Yoshida, Tokyo Institute of technology, Japan; O. Yamamuro, ISSP, Univ. of Tokyo, Japan; K. Hashimoto, Y. Toda, Chiba institute of technology, Japan

**(PACRIM8-S21-P166-2009) Preparation of hydroxyapatite nano particles applying micro chemical processes**

E. Fujii\*, K. Kawabata, Industrial Technology Center of Okayama Prefecture, Japan; Y. Nakazaki, Y. Tanizawa, Nano Cube Japan Co., Ltd., Japan; A. Matsumoto, Y. Shirosaki, S. Hayakawa, A. Osaka, Okayama University, Japan

**(PACRIM8-S21-P167-2009) In Vitro Characterization of Dense Silicon-Hydroxyapatite Tablets**

H. M. Silva, G. A. Soares\*, Federal University of Rio de Janeiro, Brazil; K. Anselme, CNRS, France

**(PACRIM8-S21-P168-2009) Fabrication of Novel Antibacterial Coating on Titanium Implants for Orthopedical Application**

M. Kazemzadeh-Narbat\*, K. Duan, J. Kindrachuck, R. Hancock, R. Wang, University of British Columbia, Canada

**(PACRIM8-S21-P169-2009) Dissolution Behavior of Beta-Tricalcium Phosphate Doped with Monovalent Metal Ions in Acetic Acid Buffer**

N. Matsumoto\*, Y. Ikeda, Chiba Institute of Technology, Japan; K. Yoshida, Tokyo Institute of Technology, Japan; K. Hashimoto, Y. Toda, Chiba Institute of Technology, Japan

**(PACRIM8-S21-P170-2009) Calcium phosphate deposition on titanium implants by electrolytic deposition**

M. Ma, K. Duan, University of British Columbia, Canada; X. Wang, Zhejiang University, China; R. Wang\*, University of British Columbia, Canada

**(PACRIM8-S22-P171-2009) Nanoparticle synthesis, characterisation and labelling for toxicological studies: problems and pitfalls**

D. Berhanu, A. Dybowska, S. Misra, Natural History Museum, United Kingdom; T. Teresa, J. Plant, Imperial College London, United Kingdom; S. Luoma, Natural History Museum, United Kingdom; A. R. Boccaccini\*, Imperial College London, United Kingdom; E. Valsami-Jones, Natural History Museum, United Kingdom

**(PACRIM8-S23-P172-2009) Model for Calculation of Properties of Chalcogenide Glasses from Their Chemical Compositions**

A. Priven\*, ITC, inc., Russia

**(PACRIM8-S23-P173-2009) Material patent databases: present state and prospective of further developments**

A. Priven\*, O. V. Mazurin, ITC, inc., Russia

**(PACRIM8-S23-P175-2009) An ESR and Property Study of Alkali and Alkaline-Earth Vanadate Glasses**

D. Vennerberg\*, Morningside College, USA; J. Arredondo, Coe College, USA; M. Berman, University of Maryland, USA; S. Feller, M. Vu, M. Affatigato, Coe College, USA; J. McKnight, A. Valencia, B. Baker, P. Bunton, William Jewell College, USA

**(PACRIM8-S23-P176-2009) Diffusion Zone in Crystallized Photo-Thermo-Refactive Glass**

G. P. Souza, V. M. Fokin, E. D. Zanotto\*, Federal University of Sao Carlos, Brazil; J. Lumeau, L. Glebova, L. B. Glebov, University of Central Florida, USA

**(PACRIM8-S23-P177-2009) Improvement of Surface Properties of Glass by the Transparent Carbon Film Coatings**

H. Lee\*, R. Rajagopalan, C. G. Pantano, PennState University, USA

**(PACRIM8-S23-P179-2009) Property Prediction of Glasses Utilizing INTERGLAD Ver. 7. I. Multiple Regression Analysis with Multiple-Order Polynomials**

K. Suzuki\*, T. Iseda, New Glass Forum, Japan; H. Inoue, A. Masuno, Institute of Industrial Science, University of Tokyo, Japan

**(PACRIM8-S23-P180-2009) Characterization of Surface Layers on Glass by X-Ray Reflectivity**

M. Höland\*, J. Birkhölzer, A. Bernard, Interstate University of Applied Sciences of Technology Buchs, Switzerland; G. Hensch, J. Deubener, Clausthal University of Technology, Germany

**(PACRIM8-S23-P181-2009) Viscous Flow and Diffusion in Iron-Bearing Alkaline-Earth Silicate Glasses**

M. M. Smedskjaer\*, Y. Yue, Aalborg University, Denmark

**(PACRIM8-S23-P182-2009) Glass formation, crystallization and the impact of oxygen partial pressure in the system MnO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>**

N. Da\*, S. Krolkowski, M. Göbbels, L. Wondraczek, University of Erlangen-Nürnberg, Germany

**(PACRIM8-S23-P183-2009) Dissolution behavior and fluoride release from new glass composition used in glass ionomer cements**

R. Salarian\*, Maziar University, School of Engineering, Mazandaran, Noor, Iran, Iran; M. Salarian, School of Materials Engineering, Science and Research Branch, Islamic Azad University, Tehran, Iran, Iran; M. Solati-Hashjin, F. Moztafarzadeh, S. Shafiei, Biomaterial Group, Faculty of Biomedical Engineering, Amirkabir University of Technology, Tehran, Iran, Iran

**(PACRIM8-S23-P185-2009) Crystallization in 45S5 Bioactive Glass**

S. T. Reis\*, S. B. Jung, C. S. Ray, D. E. Day, R. K. Brow, Missouri University of Science and Technology, USA

**(PACRIM8-S23-P186-2009) Glass forming range and small polaron hopping conduction of V<sub>2</sub>O<sub>5</sub>-P<sub>2</sub>O<sub>5</sub>-WO<sub>3</sub> system**

W. Chung\*, K. Kim, Kongju National University, Korea, South; Y. Choi, Korea Aereospace University, Korea, South

**(PACRIM8-S24-P187-2009) Increasing the Efficiency of Polymer Solar Cells on Glass Substrate by Optimum Slow Growth Procedure**

F. Juang\*, Y. Tsai, W. Kuo, W. Chu, P. Wang, R. Tang, C. Chen, M. Chang, M. O. Liu, National Formosa University Huwei, Taiwan

**(PACRIM8-S24-P188-2009) Fining Ability of TFT-LCD Glass Batches Containing Various Polyvalent Ions and Voltammetric Approach to Fining Process**

K. Kim\*, J. Kim, H. Kim, Kunsan National University, Korea, South

**(PACRIM8-S24-P189-2009) Comparison of Crack Opening Displacement of Glasses and derived Glass-Ceramics**

M. Höland\*, A. Bernard, Interstate University of Applied Sciences of Technology Buchs, Switzerland; E. Apel, W. Höland, Ivoclar Vivadent AG, Liechtenstein; J. Deubener, Clausthal University of Technology, Germany

**(PACRIM8-S24-P190-2009) Characterization of Homogeneity in Stone Wool Melts**

M. Jensen\*, R. Keding, Aalborg University, Denmark; T. Höche, Leibniz Institute for Surface Modification, Germany; Y. Yue, Aalborg University, Denmark

**(PACRIM8-S24-P191-2009) Optimizing the composition of glass particles as supplementary cementitious materials**

M. Moesgaard\*, Y. Yue, Aalborg University, Denmark

**(PACRIM8-S24-P192-2009) Dissolution of alumina in glass matrix composites**

R. Mueller\*, S. Reinsch, Federal Institute for Materials Research and Testing, Germany; J. Deubener, Clausthal University of Technology, Germany, Germany

**(PACRIM8-S24-P193-2009) Effects of Relative Humidity and Temperatures on Generation of Foggy Defects of Plate Glasses**

S. B. Jiamsirilars\*, Chulalongkorn University, Thailand; T. Jitwatcharakomol, Department of Science Service, Thailand; A. Theerapapvisetpong, Chulalongkorn University, Thailand

**(PACRIM8-S24-P194-2009) Strength of Chemically strengthened glass**

T. Murata\*, T. Komai, S. Miwa, H. Yamazaki, Nippon Electric Glass Co., Ltd., Japan

**(PACRIM8-S24-P195-2009) Two point bending studies of the inert failure characteristics of silicate glasses**

Z. Tang\*, N. P. Lower, R. K. Brow, Missouri University of Science & Technology, USA; C. R. Kurkjian, Rutgers University, USA

**(PACRIM8-S24-P196-2009) Properties of Bi<sub>2</sub>O<sub>3</sub>-B<sub>2</sub>O<sub>3</sub>-(Na<sub>2</sub>O, K<sub>2</sub>O)-SiO<sub>2</sub>-CaO-Al<sub>2</sub>O<sub>3</sub> glass system based on local sands doped with CuO**

P. Dararutana\*, Chiang Mai University, Thailand; P. Wathanakul, S. Pongkrapan, Kasetsart University, Thailand

**(PACRIM8-S24-P197-2009) The Effect of Air- and Oxy-Fuel Combustion Modes on Glass Hydroxyl Content**

L. Johnson\*, M. Habel, M. Watson, Air Products and Chemicals, Inc., USA

**(PACRIM8-S25-P199-2009) Viscosity Properties of Tellurite and Borophosphate Glasses**

B. Tincher\*, S. Gaylord, A. Stratulat, L. Petit, K. Richardson, Clemson University, USA

**(PACRIM8-S25-P200-2009) Rare Earth Doped Ln<sup>3+</sup> Fluorides for Broadband Amplifiers**

C. J. Kucera\*, T. L. James, A. G. James, B. Kokuoz, J. Ballato, Clemson University, USA

**(PACRIM8-S25-P201-2009) Anti-reflective structure formed by direct imprinting process on optical glass**

H. Kasa\*, J. Nishii, National Institute of Advanced Industrial Science and Technology, Japan

**(PACRIM8-S25-P202-2009) Fabrication of Low-loss Chalcogenide IR Fibres with Improved Mechanical Properties for IR Delivery Applications**

J. Couillard\*, F. Sylvain, CorActive High-Tech Inc., Canada

**(PACRIM8-S25-P203-2009) Preparation and Characterization of Novel Tm-doped Tellurite Glasses Sensitized with Yb**

D. Milanese, H. Gebavi, M. Ferraris, Politecnico di Torino, Italy; A. Schulzgen, L. Li, N. Peyghambarian, University of Arizona, USA; S. Taccheo, M. Taher, Swansea University, United Kingdom; F. Auzel, FAC, France; J. Lousteau\*, Politecnico di Torino, Italy

**(PACRIM8-S25-P204-2009) Refractive index measurements in photo-thermo-refractive glass at different stages of hologram fabrication**

J. H. Lumeau\*, L. B. Glebov, University of Central Florida, USA

**(PACRIM8-S25-P205-2009) ZnO-Bi<sub>2</sub>O<sub>3</sub>-P<sub>2</sub>O<sub>5</sub> glasses for fabrication of sub-wavelength periodic structure by glass-imprinting method**

J. Nakamura\*, T. Hidaka, Nihon Yamamura Glass CO., LTD., Japan; N. Kitamura, K. Fukumi, National Institute of Advanced Industrial Science and Technology, Japan; T. Ikeda, H. Hashima, Nihon Yamamura Glass CO., LTD., Japan; J. Nishii, National Institute of Advanced Industrial Science and Technology, Japan

**(PACRIM8-S25-P206-2009) Quantum efficiency of Cr<sup>3+</sup> ion in oxide glasses for solar pumped laser**

S. Mizuno\*, H. Itoh, K. Hasegawa, Toyota central R&D labs., Inc., Japan; H. Nasu, T. Suzuki, Y. Ohishi, Toyota technological institute, Japan

**(PACRIM8-S25-P207-2009) Stress-optic Response of Glass Near the Absorption Edge**

S. L. Thomas\*, V. Martin, J. W. Zwanziger, Dalhousie University, Canada

**(PACRIM8-S25-P208-2009) Compositional optimization of bismuth doped yttria-alumina-silica glass**

M. Hughes, T. Suzuki\*, Y. Ohishi, Toyota Technological Institute, Japan

**(PACRIM8-S25-P209-2009) Optical properties of Tb<sup>3+</sup>-Yb<sup>3+</sup> co-doped oxyfluoride transparent glass-ceramics**

T. Suzuki\*, K. Mizuno, M. Shigemoto, Y. Ohishi, Toyota Technological Institute, Japan

**(PACRIM8-S25-P210-2009) Quantum efficiencies by real sunlight excitation of glass materials for solar pumped fiber lasers**

T. Suzuki\*, H. Nasu, Toyota Technological Institute, Japan; S. Mizuno, H. Itoh, K. Hasegawa, Toyota Central R&D Labs., Inc., Japan; Y. Ohishi, Toyota Technological Institute, Japan

**(PACRIM8-S25-P211-2009) Mid-IR spectroscopic properties of Pr<sup>3+</sup> and Dy<sup>3+</sup> doped Ge-Ga-Sb-Se glasses and optical fibers**

B. Park, H. Seo, J. Ahn, Electronics and Telecommunications Research Institute, Korea, South; Y. Choi, Korea Aerospace University, Korea, South; W. Chung\*, Kongju National University, Korea, South

**(PACRIM8-S25-P212-2009) A tellurite microstructure nanofiber fabricated for supercontinuum generation pumped by 1064nm picosecond laser**

M. Liao, G. Qin, C. Chittrarekha, T. Suzuki, Y. Ohishi\*, Toyota Technological Institute, Japan

**(PACRIM8-S15-P215-2009) Thermoelectric properties of LnMo-8O14 (Ln = La, Pr, Nd and Sm)**

J. Xu\*, M. Sonne, Risoe National Laboratory for Sustainable Energy, Denmark; H. Kleinke, University of Waterloo, Canada; M. Nygren, Stockholm University, Sweden; T. M. Tritt, Clemson University, USA; N. Pryds, Risoe National Laboratory for Sustainable Energy, Denmark

**(PACRIM8-S15-P216-2009) Microstructure and Thermoelectric Properties of (GeTe)<sub>80</sub>(Ag<sub>1.2</sub>Sb<sub>0.8</sub>Te<sub>1.8</sub>)<sub>20</sub>**

T. Zhu\*, S. Yang, S. Zhang, Y. Chen, X. Zhao, Zhejiang university, China

**(PACRIM8-S23-P217-2009) Interface Controlled Nucleation and Crystallization (INTERCONY) FP6-NMP3-CT-2006-033200 (Strep Project)**

A. Duran\*, Instituto de Cerámica y Vidrio (CSIC), Spain

**(PACRIM8-S25-P218-2009) Structural Changes in the Swelled Glasses**

S. Cheng, S. Logunov\*, A. Streltsov, Corning Incorporated, USA

**Wednesday, June 3, 2009****ICG Tutorials: "Clear as Glass"**

Room: Regency E

**8:00 AM**

**Thermochemistry of Mineral Raw Materials, Glass Melts, and Solid Glass**

Leader: Reinhard Conradt, RWTH Aachen University, Germany

**8:45 AM**

**The Glass Furnace: A Thermochemical Reactor**

Leader: Reinhard Conradt, RWTH Aachen University, Germany

**9:30 AM**

**Thermochemistry of Combustion**

Leader: Rudolf Beerken, TNO Glass Group, Netherlands

**10:15 AM****Mechanisms, Thermochemistry, and Kinetics of Refining**

Leader: Rudolf Beerkens, TNO Glass Group, Netherlands

**11:00 AM****Transport Phenomena during Glass Melting**

Leader: Pavel Hirma, Pacific Northwest National Laboratory, USA

**Symposium 01: Design, Modeling, and Simulation of Ceramic Interfaces****The Role of Grain Boundaries in Radiation Damage and Nuclear Materials**

Room: English Bay

Session Chairs: Mitra Taheri, Drexel University; Martha Mecartney, University of California, Irvine

**8:30 AM****(PACRIM8-S01-015-2009) Computer Simulations of Radiation Effects and Thermal Annealing at Ceramic Interfaces (Invited)**

W. J. Weber\*, F. Gao, R. Devanathan, Pacific Northwest National Laboratory, USA

**9:00 AM****(PACRIM8-S01-016-2009) Thermal Transport in Ceramics: Insights from Atomic-level Simulations (Invited)**

S. Phillpot\*, University of Florida, USA

**9:30 AM****Discussion Time****9:40 AM****Break****The Role of Grain Boundaries in Dielectric/Electronic Behavior**

Room: English Bay

Session Chairs: Martha Mecartney, University of California, Irvine; Mitra Taheri, Drexel University

**10:00 AM****(PACRIM8-S01-017-2009) Grain Boundaries-Ferroelectric Domains Interactions in Textured Polycrystalline Materials (Invited)**

R. Garcia\*, Purdue University, USA

**10:30 AM****(PACRIM8-S01-018-2009) Defect energetics in perovskite oxides from first principles**

H. Lee\*, T. Mizoguchi, T. Yamamoto, Y. Ikuhara, The University of Tokyo, Japan

**10:50 AM****(PACRIM8-S01-019-2009) Effect of heat treatment in hydrogen atmosphere on electrical properties of BaTiO<sub>3</sub>-(Bi<sub>1/2</sub>Na<sub>1/2</sub>)TiO<sub>3</sub> PTC ceramics**

K. Ino\*, T. Shimada, T. Kida, K. Ichikawa, Hitachi Metals. Ltd., Japan

**11:10 AM****(PACRIM8-S01-020-2009) Novel In Situ Microscopy Methods for Understanding the Effects of Microstructure and Chemistry on Structural and Electrical Properties in Ceramics (Invited)**

M. L. Taheri\*, Drexel University, USA

**11:40 AM****(PACRIM8-S01-021-2009) Design of Electrode Materials for Li Rechargeable Batteries by Integrating ab initio Calculations with Experiments (Invited)**

K. Kang\*, KAIST, Korea, South; G. Ceder, Massachusetts Institute of Technology, USA; Y. Meng, University of Florida, USA; C. P. Grey, J. Breger, State University of New York at Stony Brook, USA

**Symposium 04: Polymer Derived Ceramics and Composites****Advanced Applications and Properties I**

Room: Plaza A

Session Chair: Ya-Li Li, Tianjin University

**8:30 AM****(PACRIM8-S04-031-2009) Water Purification System Using our Photocatalytic Fiber (Invited)**

T. Ishikawa\*, Ube Industry, Ltd., Japan

**9:00 AM****(PACRIM8-S04-032-2009) The Activity and the Diffusion Coefficient of Lithium in Polymer-Derived Silicon OxyCarbide (SixOyCz)**

D. Ahn\*, S. Lee, R. Raj, University of Colorado-Boulder, USA

**9:20 AM****(PACRIM8-S04-033-2009) Lithium Insertion in SiCO Ceramics Derived from Polysiloxanes**

P. E. Sanchez Jimenez\*, R. Raj, University of Colorado at Boulder, USA

**9:40 AM****Break****Structural Characterization**

Room: Plaza A

Session Chair: Gian Domenico Soraru, University of Trento

**10:00 AM****(PACRIM8-S04-034-2009) Solid state NMR characterization of PDCs : combined experimental and ab-initio investigations**

C. Gervais\*, F. Babonneau, F. Mauri, UPMC, France

**10:20 AM****(PACRIM8-S04-035-2009) Solid-state Nuclear Magnetic Resonance Investigations of Precursor-derived Ceramics**

K. Mueller\*, University of Trento, Italy; F. Poli, O. Tsetsgee, University of Stuttgart, Germany

**10:40 AM****(PACRIM8-S04-036-2009) Structural Model of Carbon-Rich SiCN Ceramics by SAXS**

A. Tamayo-Hernando, G. Mera\*, H. Nguyen, Technische Universität Darmstadt, Germany; D. L. Williamson, Colorado School of Mines, USA; R. Riedel, Technische Universität Darmstadt, Germany

**11:00 AM****(PACRIM8-S04-037-2009) Laser Ionization Time of Flight Mass Spectrometry Study of Silicon Oxycarbide Glasses**

A. Marquardt, Coe College, USA; A. Karakuscu, Università di Trento, Italy; M. Affatigato\*, Coe College, USA; G. Soraru, Università di Trento, Italy

**11:20 AM****(PACRIM8-S04-038-2009) TEM Investigations on Nano/Micro Structure Evolution of Polymer-Derived SiOC/HfO<sub>2</sub> Ceramic Nanocomposites**

H. Kleebe\*, B. Papendorf, E. Ionescu, R. Riedel, Technische Universität Darmstadt, Germany

**11:40 AM****(PACRIM8-S04-039-2009) Complex permittivity and influence of nanoparticle additives in the injection mouldable thermoplastic ceramic-polymer composites**

M. Teirikangas\*, J. Juuti, H. Jantunen, University of Oulu, Finland

## Symposium 05: Advanced Powder Processing and Manufacturing Technologies

### Colloidal Processing II, Binder Technology and Manufacturing II

Room: Plaza C

Session Chairs: Junichi Tatami, Yokohama National University; Yoram DeHazan, EMPA

**8:30 AM**

**(PACRIM8-S05-031-2009) Application of Electrophoretic Deposition for Ceramics Coating on Nonconductive Substrate Materials (Invited)**

T. Uchikoshi\*, T. S. Suzuki, Y. Sakka, National Institute for Materials Science, Japan

**9:00 AM**

**(PACRIM8-S05-032-2009) Colloidal characterisation and aqueous gel casting of barium titanate ceramics**

C. D. Munro, K. P. Plucknett\*, Dalhousie University, Canada

**9:20 AM**

**(PACRIM8-S05-033-2009) Hydraulic Alumina Binder for Extrusion of Silicon Nitride Ceramics**

T. Nagaoka\*, D. Cihangir, H. Hyuga, K. Watari, National Institute of Advanced Industrial Science and Technology, Japan

**9:40 AM**

Break

**10:00 AM**

**(PACRIM8-S05-034-2009) Direct Observation of Particle Movement in Extrusion Forming (Invited)**

K. Uematsu\*, M. Uematsu, S. Tanaka, Nagaoka University of Technology, Japan; K. Watari, AIST, Japan

**10:30 AM**

**(PACRIM8-S05-035-2009) Effect of plasticizer on the structure formation in tape cast ceria**

T. Klemensoe\*, S. Ramousse, M. Menon, Risoe DTU, Denmark

## Ceramic/Polymer Composite

Room: Plaza C

Session Chairs: Satoshi Tanaka, Nagaoka University of Technology; Seizo Obata, Gifu Ceramics Research Institute

**10:50 AM**

**(PACRIM8-S05-036-2009) Effect of milling methods on ceramic particle/polymer hybrid paste**

Y. Hotta\*, K. Sato, K. Watari, National Institute of Advanced Industrial Science and Technology (AIST), Japan

**11:10 AM**

**(PACRIM8-S05-037-2009) High Loading Ceramic Nanoparticle Dispersions in UV Curable Resins Using Electrosteric Surfactants**

Y. DeHazan\*, J. Heinecke, T. Graule, EMPA, Switzerland

**11:30 AM**

**(PACRIM8-S05-038-2009) Thermal conductivity/effusivity of grain-grown Al<sub>2</sub>O<sub>3</sub> fillers**

S. Kume\*, I. Yamada, K. Watari, National Institute of Advanced Industrial Science and Technology (AIST), Japan

## Symposium 07: Nanostructured Materials and Systems

### Nano-Bio Interaction

Room: Balmoral

Session Chair: Suprakas Sinha Ray, National Centre for Nano-Structured Materials

**8:30 AM**

**(PACRIM8-S07-032-2009) Nanoparticle-based strategies for high-performance biodetection (Invited)**

C. Fan\*, Shanghai Institute of Applied Physics, Chinese Academy of Sciences, China

**9:00 AM**

**(PACRIM8-S07-033-2009) Bioactive glass-ceramic/mesoporous silica composite scaffolds for bone grafting and drug release**

E. Verne\*, F. Baino, M. Miola, G. Novajra, R. Mortera, B. Onida, C. Vitale-Brovarone, Politecnico di Torino, Italy

**9:20 AM**

**(PACRIM8-S07-034-2009) Study of Biomolecule by Doping Bio-active Nanomaterials**

Y. Long\*, D. Li, L. Zhang, D. Li, East China University of Science and Technology, China

**9:40 AM**

Break

### Materials for Nano-Sensors

Room: Balmoral

Session Chair: Chunhai Fan, Shanghai Institute of Applied Physics, Chinese Academy of Sciences

**10:00 AM**

**(PACRIM8-S07-035-2009) Synergetic interplay of electronic and geometrical effects in enhanced H sensing response of size selected Pd nanoparticles (Invited)**

B. R. Mehta\*, Indian Institute of Technology Delhi, India

**10:30 AM**

**(PACRIM8-S07-036-2009) Plasmonic Based Harsh Environment Compatible Chemical Sensors (Invited)**

M. A. Carpenter\*, P. H. Rogers, University at Albany-SUNY, USA

**11:00 AM**

**(PACRIM8-S07-037-2009) Atomistic Insights into the Chemical Sensing Applications of Nanomaterials**

J. Prades\*, A. Cirera, J. Morante, University of Barcelona, Spain

**11:20 AM**

**(PACRIM8-S07-038-2009) Materials Engineering for Nanosensors (Invited)**

A. Gurlo\*, Technische Universitaet Darmstadt, Germany

**11:50 AM**

**(PACRIM8-S07-039-2009) UV-light Operated Gas Sensors based on Metal Oxide Nanowires for Room Temperature Applications**

J. Prades\*, R. Jimenez-Diaz, University of Barcelona, Spain; F. Hernandez-Ramirez, Electronic Nanosystems S.L., Spain; S. Barth, University of Cologne, Germany; A. Cirera, A. Romano-Rodriguez, University of Barcelona, Spain; S. Mathur, University of Cologne, Germany; J. Morante, University of Barcelona, Spain

## Symposium 08: Engineering Ceramics and Ceramic Matrix Composites: Design, Development, and Applications

### Reliability and Lifetime Prediction Methodologies

Room: Oxford

Session Chair: S Jill Glass, Sandia National Labs

**8:30 AM**

#### (PACRIM8-S08-028-2009) From Materials to Systems Level Reliability

S. Glass\*, Sandia National Labs, USA

**8:50 AM**

#### (PACRIM8-S08-029-2009) Prediction of strength from macro-defects in alumina ceramics

S. Tanaka\*, S. Nakamura, R. Furushima, Z. Kato, K. Uematsu, Nagaoka University of Technology, Japan

**9:10 AM**

#### (PACRIM8-S08-030-2009) Thermal Shock Induced Propagation of Indentation Cracks in Alumina

M. W. Reiterer\*, Medtronic, Inc., USA; R. Tandon, Sandia National Labs, USA

**9:30 AM**

Break

**10:00 AM**

#### (PACRIM8-S08-031-2009) Nondestructive Measurement and Evaluation for Subsurface Defects in Ceramic Matrix Composite

H. Mei\*, China

**10:20 AM**

#### (PACRIM8-S08-032-2009) Degradation of Silicon Nitride in an Electric Field

C. Oprea\*, T. Troczynski, F. Wong, H. Karimi Sharif, The University of British Columbia, Canada; C. Blair, A. Welch, Westport Innovations Inc., Canada

### Joining

Room: Oxford

Session Chair: Dileep Singh, Argonne National Lab

**10:40 AM**

#### (PACRIM8-S08-033-2009) Characterization of Bonded Joints of C/C-SiC, C/C and Titanium Specimens (Invited)

V. K. Srivastava\*, Institute of Technology, India; S. Singh, Institute of Technology, BHU, India

**11:00 AM**

#### (PACRIM8-S08-034-2009) Structural optimization of ceramic/metal braze joints for OTM applications

A. Bezold\*, C. Van Nguyen, C. Broeckmann, RWTH Aachen University, Germany

**11:20 AM**

#### (PACRIM8-S08-035-2009) Brazing of MIEC ceramics to high temperature metals

S. Dabbarh\*, E. Pfaff, RWTH Aachen University Institute for Materials Applications in Mechanical Engineering, Germany; A. Ziombra, Robert Bosch GmbH, Germany; A. Bezold, RWTH Aachen University Institute for Materials Applications in Mechanical Engineering, Germany

**11:40 AM**

#### (PACRIM8-S08-036-2009) Joining of Dissimilar Ceramics by Plastic Deformation and the Role of Residual Stresses on the Mechanical Properties of the Layered Composites

D. Singh\*, C. Lorenzo-Martin, J. Routbort, Argonne National Lab, USA; G. Chen, Ohio University, USA

## Symposium 09: Advanced Ceramic Coatings: Processing, Properties, and Applications

### Dielectric and Optical Coatings

Room: Prince of Wales

Session Chairs: Jow-Lay Huang, National Cheng Kung University, Tainan, Taiwan; Ping Xiao, University of Manchester

**8:30 AM**

#### (PACRIM8-S09-030-2009) Growth and optical properties of novel ZnO nanomaterials (Invited)

J. Huang\*, C. KuO, National Cheng Kung University, Tainan, Taiwan, Taiwan; R. Wang, National University of Kaohsiung, Taiwan, Taiwan; C. Liu, National Cheng Kung University, Tainan, Taiwan, Taiwan

**9:00 AM**

#### (PACRIM8-S09-031-2009) Texture Control of Fluorine-doped Tin Oxide (FTO) Coating by Spray Pyrolysis Method

C. Kim\*, Korea Institute of Ceramic Eng. & Tech, Korea, South; C. Song, Solar Ceramics Co., Korea, South; D. Riu, S. Huh, K. Cho, Korea Institute of Ceramic Eng. & Tech, Korea, South

**9:20 AM**

#### (PACRIM8-S09-032-2009) Effects of substrate bias on the reactively sputtered ZrN diffusion barrier films

J. Ruan\*, National Cheng Kung University, Taiwan; D. Lii, Cheng Shiu University, Taiwan; H. Lu, National Chin-Yi University of Technology, Taiwan; J. Chen, J. Huang, National Cheng Kung University, Taiwan

**9:40 AM**

Break

### Multifunctional and Bio-Coatings

Room: Prince of Wales

Session Chairs: Jow-Lay Huang, National Cheng Kung University, Tainan, Taiwan; Ping Xiao, University of Manchester

**10:00 AM**

#### (PACRIM8-S09-033-2009) Novel Growing Integration Layer [GIL] Method for the Coating of Ceramic Layer on Metallic Materials, and Its Application for Bulk Metallic Glasses with High Biocompatibilities (Invited)

M. Yoshimura\*, N. Sugiyama, H. Xu, N. Matsushita, Tokyo Inst. Tech., Japan; X. Wang, T. Wada, F. Qin, A. Inoue, Tohoku University, Japan; M. Tsukamoto, K. Nakata, Osaka University, Japan

**10:30 AM**

#### (PACRIM8-S09-034-2009) Adhesive Properties of Nano-structured Alumina Coatings Fabricated Using AlN Powder Hydrolysis (Invited)

T. Kosmac\*, K. Krnel, A. Kocjan, Jozef Stefan Institute, Slovenia; P. Jevnikar, University of Ljubljana, Medical Faculty, Slovenia

**11:00 AM**

#### (PACRIM8-S09-035-2009) Compositionally Graded Ceramic Coatings using Laser Engineered Net Shaping

A. Bandyopadhyay\*, B. Krishna, S. Bose, Washington State University, USA

**11:20 AM**

#### (PACRIM8-S09-036-2009) Synthesized Zircon and Zircon Composite from Liquid Chemical Process

Y. A. Lu\*, Corning, Inc., USA

**11:40 AM**

#### (PACRIM8-S09-037-2009) Study on Relationship between Luminescence Properties of Eu<sup>3+</sup>:YPO<sub>4</sub> and Its Corrosion

W. Liu\*, Y. Wang, L. Cheng, National Key Laboratory of Thermostructure Composite Materials, Northwestern Polytechnical University, China



## Symposium 11: Advances in Electroceramics

### Lead-free Piezoelectrics / Fundamental

Room: Regency A

Session Chairs: Takaaki Tsurumi, Tokyo Institute of Technology; Zuo-Guang Ye, Simon Fraser University

**8:30 AM**

**(PACRIM8-S11-022-2009) Processing and Electrical Property Relationships of Lead-free Piezoceramics in the  $\text{Bi}_0.5\text{Na}_0.5\text{TiO}_3\text{-BaTiO}_3\text{-K}_0.5\text{Na}_0.5\text{NbO}_3$  System**

C. DiAntonio\*, P. Yang, M. Winter, G. Burns, T. Chavez, Sandia National Laboratories, USA

**8:50 AM**

**(PACRIM8-S11-023-2009) Lead-free piezoelectric ceramics and micro-scale 1-3 piezoceramic/polymer composites (Invited)**

J. Li\*, Z. Shen, Y. Xu, Tsinghua University, China

**9:20 AM**

**(PACRIM8-S11-024-2009) Development of High-performance Lead-free Alkali Niobate Piezoceramics by Novel Wet Powder Processing**

K. Kakimoto\*, Y. Hayakawa, T. Nguyen, I. Kagomiya, Nagoya Institute of Technology, Japan

**9:40 AM**

Break

**10:00 AM**

**(PACRIM8-S11-025-2009) Textured KNN-based piezoelectric ceramics produced by reactive templated grain growth**

Y. Chang, Shaanxi Normal University, China; S. F. Poterala, Pennsylvania State University, USA; Z. Yang, Shaanxi Normal University, China; G. L. Messing\*, Pennsylvania State University, USA

**10:20 AM**

**(PACRIM8-S11-026-2009) Processing and Properties of Lead-Free Ferroelectric  $\text{K}_0.5\text{Na}_0.5\text{NbO}_3$  Thin Films by Chemical Solution Deposition**

W. Sakamoto\*, Y. Nakashima, Nagoya University, Japan; H. Maiwa, Shonan Institute of Technology, Japan; T. Shimura, T. Yogo, Nagoya University, Japan

**10:40 AM**

**(PACRIM8-S11-027-2009) A rhombohedral phase at room temperature in solid solution  $(1-x)\text{Na}_0.5\text{K}_0.5\text{NbO}_3\text{-xBaZrO}_3$**

R. Wang\*, H. Bando, National Institute of Advanced Industrial Science and Technology, Japan; T. Katsumata, Y. Inaguma, Gakushuin University, Japan; M. Itoh, Tokyo Institute of Technology, Japan

**11:00 AM**

**(PACRIM8-S11-028-2009) Electronic Properties  $\text{RFe}_2\text{O}_4$  Film**

T. Michiuchi, Okayama University, Japan; J. Park, National Institute of Advanced Industrial Science and Technology, Japan; H. Hayakawa, D. Maeda, T. Kuroda, T. Kambe, Okayama University, Japan; J. Akedo, National Institute of Advanced Industrial Science and Technology, Japan; N. Ikeda\*, Okayama University, Japan

**11:20 AM**

**(PACRIM8-S11-029-2009) Micro-Brillouin Scattering of Relaxor Ferroelectrics**

S. Kojima\*, University of Tsukuba, Japan

**11:40 AM**

**(PACRIM8-S11-030-2009) Zinc vacancies in  $\text{ZnO}$**

N. Ohashi\*, I. Sakaguchi, T. Nakagawa, Y. Adachi, K. Matsumoto, S. Ueda, H. Yoshikawa, K. Kobayashi, H. Haneda, National Institute for Materials Science, Japan

## Symposium 12: Microwave Materials and Their Applications

### Tunable Materials, Thin Films and Devices (I)

Room: Regency B

Session Chairs: Xiang Ming Chen, Zhejiang University; Hisao Suzuki, Shizuoka University

**8:30 AM**

**(PACRIM8-S12-029-2009) Ilmenite and Bronzoid Thin and Thick Films for High Frequency Applications: Aspects of Fabrication and Characterization (Invited)**

P. Vilarinho\*, University of Aveiro, Portugal

**9:00 AM**

**(PACRIM8-S12-030-2009) A Minimized Patch Antenna with Ferroelectric Thin Film**

W. Liao\*, C. Chou, National Taiwan University of Science and Technology, Taiwan

**9:20 AM**

**(PACRIM8-S12-031-2009) Methods for Microwave Measurements of Thin Ferroelectric Films (Invited)**

P. K. Petrov\*, N. Alford, Imperial College London, United Kingdom

**9:50 AM**

Break

**10:10 AM**

**(PACRIM8-S12-032-2009) The potential of multiferroics for GHz and THz application (Invited)**

S. Gevorgian\*, A. Vorobiev, Chalmers University, Sweden

**10:40 AM**

**(PACRIM8-S12-033-2009) Ferroelectrics as Materials for Microwave Tunable Devices (Invited)**

A. K. Tagantsev\*, Swiss Federal Institute of Technology (EPFL), Switzerland

**11:10 AM**

**(PACRIM8-S12-034-2009) Realization of Material Property Balance for Complex Oxide Thin Films via Photon Irradiation Processing (Invited)**

M. W. Cole\*, E. Ngo, US Army Research Laboratory, USA; S. Ramanathan, A. Podpirka, Harvard University, USA

## Symposium 14: Solid Oxide Fuel Cells and Hydrogen Technology

### Electrochemical Performance, Modeling, Cell and Stack Designs

Room: Georgia B

Session Chairs: Fatih Dogan, Missouri University of Science and Technology; John Kilner, Imperial College

**8:30 AM**

**(PACRIM8-S14-011-2009) The Role of Solid Oxide Fuel Cell Microstructure In Determining Electrode Polarization Resistance (Invited)**

S. Barnett\*, J. Wilson, S. Cronin, Northwestern Univ, USA

**9:00 AM**

**(PACRIM8-S14-012-2009) Micro-SOFC type Electrochemical Reactors (Invited)**

Y. Fujishiro\*, T. Suzuki, T. Yamaguchi, K. Hamamoto, M. Awano, National Institute of Advanced Industrial Science and Technology(AIST), Japan

**9:30 AM**

Break

**9:50 AM****(PACRIM8-S14-013-2009) Ceramic technology for innovative fuel cell systems (Invited)**

A. Michaelis\*, Fraunhofer-Institut für Keramische Technologien und Systeme, Germany

**10:20 AM****(PACRIM8-S14-014-2009) Performance Assessment of Integrated SOFC Systems (Invited)**

I. Dincer\*, University of Ontario Institute of Technology, Canada

**10:50 AM****(PACRIM8-S14-015-2009) Advances in Fabrication Techniques of Solid Oxide Fuel Cells for Portable Application**

J. Kim\*, S. Choi, H. Lee, Korea Institute of Science and Technology, Korea, South; Y. Kim, S. Ahn, K. Oh, J. Moon, Yonsei University, Korea, South

**11:10 AM****(PACRIM8-S14-016-2009) Performance simulation of an anode-supported SOFC by means of detailed impedance analysis**

A. Leonide\*, Y. Apel, A. Weber, E. Ivers-Tiffée, Karlsruhe Institute of Technology (KIT), Germany

**11:30 AM****(PACRIM8-S14-017-2009) FIB/TEM and EPMA Methods as Complementary Techniques for Investigations on Solid-Oxide-Electrolyser Cells**

U. F. Vogt\*, D. Wiedenmann, C. Soltmann, EMPA, Switzerland; M. Mogensen, National Laboratory for Sustainable Energy, Denmark

**11:50 AM****(PACRIM8-S14-018-2009) Using Dilatometry to Measure the Hydration Thermodynamics of Perovskite-Based Steam Permeable Ceramics**

M. D. Sanders\*, Colorado School of Mines, USA; W. Coors, Ceramtec, USA; R. P. O'Hayre, Colorado School of Mines, USA

## Symposium 21: Nano-Biotechnology and Ceramics in Biomedical Applications

### Nanostructured Bioceramics

Room: Georgia A

Session Chair: James Shackelford, University of California, Davis

**8:30 AM****(PACRIM8-S21-031-2009) Nanoscale Hydroxyapatite for Bioceramic Applications (Invited)**

J. Shackelford\*, T. Tran, J. Groza, University of California, Davis, USA

**9:00 AM****(PACRIM8-S21-029-2009) Cell proliferation on nano-structured titanium oxide layer prepared on titanium substrates (Invited)**

S. Hayakawa\*, K. Kawanishi, K. Tsuru, Y. Shirotsaki, A. Osaka, Okayama University, Japan

**9:30 AM****Break****9:50 AM****(PACRIM8-S21-030-2009) Novel bioactive nanostructured ceramic layers formed on metals and their clinical applications (Invited)**

T. Kokubo\*, Chubu University, Japan

**10:20 AM****(PACRIM8-S21-033-2009) Evaluation of Novel Calcium Phosphate Silicate Nano-Composite Cements for Medical Applications**

S. Zhou\*, T. Troczynski, University of British Columbia, Canada; N. Ruse, University of British Columbia, Canada; Q. Yang, University of British Columbia, Canada

**10:40 AM****(PACRIM8-S21-028-2009) Rare-earth nanostructures for nanobio medicine (Invited)**

S. Seal\*, ucf, USA

**11:10 AM****(PACRIM8-S21-034-2009) Atomic Scale Computer Simulation of Materials (Invited)**

M. J. Stott\*, Queen's University, Canada

## Symposium 22: Environmental, Health, and Safety of Nanomaterials: Assessment and Measurement Needs

### EHS Issues for Nanomaterials

Room: Plaza B

Session Chairs: Steve Freiman, NIST; Sylvia Johnson, NASA Ames Research Center

**8:30 AM****(PACRIM8-S22-001-2009) Rapid Inexpensive Bio-Photonics System for Analyses of Nano-particles (Invited)**

L. L. Hench\*, University of Florida, USA

**9:00 AM****(PACRIM8-S22-002-2009) Nanomaterials Toxicity: From Materials Properties to Rapid Screening (Invited)**

S. Seal\*, A. Karakoti, B. Schennen, W. Self, W. Warren, ucf, USA

**9:30 AM****Break****9:50 AM****(PACRIM8-S22-003-2009) An Assessment of Titanium Dioxide Hazard and Exposure (Invited)**

L. Tran\*, Institute of Occupational Medicine, United Kingdom

**10:20 AM****(PACRIM8-S22-004-2009) A Needs-based Assessment of Measurements for Nanotechnology / Environmental Health and Safety (Invited)**

C. M. Allocca\*, National Institute of Standards and Technology, USA; T. Campbell, Virginia Polytechnic Institute and State University, USA

**10:50 AM****(PACRIM8-S22-005-2009) Environmental, Health, and Safety Issues for Nanomaterials: Needs and Opportunities (Invited)**

S. Freiman\*, NIST, USA

**11:20 AM****(PACRIM8-S22-006-2009) Ceria nanoparticles alter U937 cell proliferation and apoptosis**

L. Ghibelli, I. Celardo, M. De Nicola, C. Mandoli, E. Traversa\*, Univ. Roma Tor Vergata, Italy

**11:40 AM****ICF Committee Mtg.**

## Symposium 23: Glass Science

### Structural Basis of Glass Properties III

Room: Grouse

Session Chair: Akira Takada, Asahi Glass Company

**8:30 AM****(PACRIM8-S23-084-2009) Length Scales for Intermediate Range Order and Chemical Bonding Self-Organizations in Non-crystalline Glasses (Invited)**

G. Lucovsky\*, North Carolina State University, USA

**9:00 AM****(PACRIM8-S23-024-2009) Neutron scattering studies of silicate and borate glasses and melts**

L. Cormier\*, G. Calas, Universités Paris 6 et 7, CNRS, IPGP, France; B. Beuneu, Laboratoire Léon Brillouin, France

**9:20 AM****(PACRIM8-S23-025-2009) B-P and Al-P Correlations in Quaternary  $Al_2O_3$ - $B_2O_3$ - $P_2O_5$ - $SiO_2$  Glasses**

R. Youngman\*, B. Aitken, Corning Incorporated, USA

**9:40 AM**

Break

**10:00 AM****(PACRIM8-S23-026-2009) The Role of Superstructural Units in Determining the Properties of Borate Glasses**

A. Wright\*, University of Reading, United Kingdom

**10:20 AM****(PACRIM8-S23-027-2009) Thermal Properties of  $B_2O_3$ - $La_2O_3$ -based Glasses for Precision Molding**

S. Tomeno\*, K. Hayashi, Y. Kondo, Asahi Glass Co., Ltd., Japan

**10:40 AM****(PACRIM8-S23-023-2009) Structural control of glass coloration by transition elements**

G. Calas\*, L. Galoisy, L. Cormier, G. Ferlat, Université Pierre et Marie Curie, Université Denis Diderot, IPGP and CNRS, France

**11:00 AM****(PACRIM8-S23-030-2009) Composition Dependence of the Thermal Conductivity of Silicate and Borate Glasses**

J. Matsuoka\*, S. Yoshida, T. Sugawara, The University of Shiga Prefecture, Japan

**11:20 AM****(PACRIM8-S23-031-2009) Glass Formation in the  $Fe_4(P_2O_7)_3$ - $Fe(PO_3)_3$  System**

L. Zhang\*, Missouri University of Science and Technology, USA; L. Ghussn, Federal University of São Carlos, Brazil; M. L. Schmitt, Missouri University of Science and Technology, USA; E. D. Zanotto, Federal University of São Carlos, Brazil; R. K. Brow, M. E. Schlesinger, Missouri University of Science and Technology, USA

**Symposium 24: Glass Technology, Energy and Environment****Environment and Sustainability Issues in Glass**

Room: Stanley

Session Chair: Oleg Prokhorenko, L.G.P. Intl. USA

**8:30 AM****(PACRIM8-S24-022-2009) Gas Release during Melting and Fining of Sulfur Containing Glasses**

R. G. Beerkens, J. Collignon\*, M. Rongen, TNO, Netherlands

**8:50 AM****(PACRIM8-S24-023-2009) Study of Sulfate Decomposition Behavior in Silicate Melts by Differential Pulse Voltammetry with in-situ Observation**

Y. Kii\*, M. Kawaguchi, T. Futagami, S. Aoki, Nippon Electric Glass Co., Ltd., Japan; S. Yoshida, M. Kato, T. Sugawara, J. Matsuoka, Y. Miura, School of Engineering The University of Shiga Prefecture, Japan

**9:10 AM****(PACRIM8-S24-024-2009) Sulphur in silicate melts – considerations for energy efficient glass manufacturing**

L. J. Backnäs\*, J. Deubener, Clausthal University of Technology, Germany; J. Stelling, H. Behrens, Leibniz University of Hannover, Germany; S. Mangold, J. Göttlicher, Forschungszentrum Karlsruhe, Germany

**9:30 AM**

Break

**9:50 AM****(PACRIM8-S24-026-2009) Batch melting characterization of E-Glass model system**

W. Jatmiko\*, F. Frey, C. Reinhard, Institute of Mineral Engineering RWTH Aachen, Germany

**10:10 AM****(PACRIM8-S24-027-2009) Modeling of Glass Melting Processes**

A. Habraken\*, A. M. Lankhorst, S. W. van Deelen, TNO Science and Industry, Netherlands

**10:30 AM****(PACRIM8-S24-028-2009) Primary measures for NOx emission reduction of regenerative furnaces maintaining the same levels of glass quality, energy consumption, furnace lifetime and emissions**

H. van Limpt, R. Beerkens\*, J. Collignon, M. van Kersbergen, A. Lankhorst, TNO, Netherlands

**10:50 AM****(PACRIM8-S24-029-2009) Prevention of aggressive and liquid sodium containing condensates during the flue gas cleaning behind glass melters**

A. Neumann\*, W. Wilsman, R. Conrath, RWTH Aachen University, Germany

**11:10 AM****(PACRIM8-S24-030-2009) Iron and Sulfate in In-Flight-Melted Soda-Lime-Silica Glasses using Thermal Plasmas**

T. Yano\*, F. Funabiki, T. Watanabe, Tokyo Institute of Technology, Japan; O. Sakamoto, Asahi Glass Co. Ltd, Japan; K. Satoh, Toyo Glass Co. Ltd, Japan; S. Inoue, National Institute for Materials Science, Japan

**11:30 AM****(PACRIM8-S24-031-2009) Physical and chemical performances of glass particles as supplementary cementitious materials**

M. Moesgaard\*, Y. Yue, Aalborg University, Denmark

**Symposium 25: Glasses for Optoelectronic and Optical Applications****Glasses for Optoelectronics**

Room: Seymour

Session Chair: B.G. Potter, University of Arizona

**8:40 AM****(PACRIM8-S25-021-2009) Tellurite Glasses with Enhanced Non-linearity for Photonic Devices**

S. Manning\*, H. Ebdorff-Heidepriem, T. Monro, University of Adelaide, Australia

**9:00 AM****(PACRIM8-S25-022-2009) Physical and Optical Properties of Tellurite Glasses Doped with Zinc**

H. A. Sidek\*, Z. A. Talib, Universiti Putra Malaysia, Malaysia

**9:20 AM****(PACRIM8-S25-023-2009) Optical Properties of Fluorine-substituted Zinc Bismuth Phosphate Glasses**

N. Kitamura\*, K. Fukumi, National Institute of Advanced Industrial Science and Technology, Japan; J. Nakamura, T. Hidaka, T. Ikeda, H. Hashima, Nihon Yamamura Glass Co. Ltd., Japan; J. Nishii, National Institute of Advanced Industrial Science and Technology, Japan

**9:40 AM**

Break

**10:00 AM****(PACRIM8-S25-024-2009) Thermal Stability of Optical Transmission in KDP Single Crystals**

R. Beal, M. Novak, M. Kalva, B. Potter\*, University of Arizona, USA

**10:20 AM****(PACRIM8-S25-025-2009) Reflective Coatings on Glass for Solar Energy Applications**

A. S. Geleil\*, D. Edwards, S. Mixture, Alfred University, USA; R. Naum, C. Ritzler, Applied Coatings Group, Inc., USA

**10:40 AM****(PACRIM8-S25-026-2009) Sol-gel and rf-sputtering techniques for glass photonics**

G. Alombert-Goget, C. Armellini, CNR-IFN, Italy; S. Berneschi, CNR-IFAC, Italy; S. Bhaktha, CNR-IFN, Italy; B. Boulard, Université du Maine, France; M. Brenci, I. Cacciari, CNR-IFAC, Italy; A. Chiappini, A. Chiasera, CNR-IFN, Italy; C. Duverger-Arfulso, Université du Maine, France; M. Ferrari, CNR-IFN, Italy; R. Gonçalves, Universidade de São Paulo, Brazil; Y. Jestin, CNR-IFN, Italy; L. Minati, FBK, Italy; E. Moser, Università di Trento, Italy; G. Nunzi conti, Centro Studi e Ricerche E. Fermi, Italy; S. Pelli, CNR-IFAC, Italy; R. Retoux, ENSICAEN, France; G. C. Righini\*, CNR-IFAC, Italy; G. Speranza, FBK, Italy

**11:00 AM****(PACRIM8-S25-027-2009) Annealing dynamics of fs-laser written waveguides in fused silica**

J. J. Witcher\*, W. J. Reichman, L. B. Fletcher, D. M. Krol, UC Davis, USA

**11:20 AM****(PACRIM8-S25-028-2009) Oxidation States of Cerium in Silicate and Phosphate Glasses**

J. L. Rygel\*, C. G. Pantano, Pennsylvania State University, USA

**11:40 AM****(PACRIM8-S25-029-2009) Formation and Modification of Hollow Metal Nanoparticles in Glasses**

M. H. Dubiel\*, J. Haug, G. Seifert, Martin Luther University of Halle-Wittenberg, Germany; H. Hofmeister, Max Planck Institute of Microstructure Physics, Germany

**Symposium 26: Austen Angell Honorary Symposium****Supercooled Liquids and Glassy Water**

Room: Cypress

Session Chair: Pierre Lucas, University of Arizona

**8:40 AM****(PACRIM8-S26-018-2009) Liquid Water, the "Most Complex" Fluid: New Experiments and Simulations in Bulk, Nanoconfined, and Biological Environments (Invited)**

H. E. Stanley\*, P. Kumar, L. Xu, Boston University, USA; S. V. Buldyrev, Yeshiva University, USA; Z. Yan, Boston University, USA; F. Mallamace, Univ. di Messina, Italy; S. H. Chen, Massachusetts Institute of Technology, USA

**9:10 AM****(PACRIM8-S26-019-2009) Supercool(ed) water (Invited)**

R. Bohmer\*, C. Gainaru, B. Geil, A. Fillmer, TU Dortmund, Germany

**9:40 AM****Break****10:00 AM****(PACRIM8-S26-020-2009) Was Kauzmann right?: Onset of instability of a deeply supercooled liquid to crystal nucleation due to Stokes-Einstein decoupling (Invited)**

I. Saika-Voivod, Memorial University of Newfoundland, Canada; R. K. Bowles, University of Saskatchewan, Canada; P. Poole\*, St. Francis Xavier University, Canada

**10:30 AM****(PACRIM8-S26-021-2009) Water: Simple Models of Complex Thermodynamics (Invited)**

P. Debenedetti\*, Princeton University, USA

**11:00 AM****(PACRIM8-S26-022-2009) 'Reverse Calorimetry' by Nonlinear Dielectric Techniques (Invited)**

R. Richert\*, Arizona State University, USA

**11:20 AM****(PACRIM8-S26-023-2009) A Limit of Stability for Supercooled Liquid Clusters (Invited)**

R. K. Bowles\*, University of Saskatchewan, Canada; I. Saika-Voivod, Memorial University, Canada; E. Mendez-Villuendas, University of Saskatchewan, Canada

**11:40 AM****(PACRIM8-S26-024-2009) Do Diffusivities Calculated from Crystal Growth Rate and Viscosity Decouple? (Invited)**

M. L. Nascimento, E. D. Zanotto\*, Federal University of Sao Carlos, Brazil

**12:00 PM****Steve Martin**

End of Session Remarks

**Thursday, June 4, 2009****Symposium 02: Computational Approaches in Materials Research and Design****Ab-initio Calculations**

Room: English Bay

Session Chair: Yanchun Zhou, Institute of Metal Research

**8:30 AM****(PACRIM8-S02-001-2009) Ab initio modeling of the mechanical and electronic properties of intergranular glassy films (IGF) in  $\beta$ -Si<sub>3</sub>N<sub>4</sub> (Invited)**

W. Ching\*, University of Missouri-Kansas City, USA

**9:00 AM****(PACRIM8-S02-002-2009) Theoretical Prediction and Synthesis of Novel Damage Tolerant Ceramics - Hf<sub>3</sub>AlN and Zr<sub>3</sub>AlN**

F. Li\*, J. Wang, M. Li, Y. Zhou, Institute of Metal Research, Chinese Academy of Sciences, China

**9:20 AM****(PACRIM8-S02-003-2009) Theoretical elastic stiffness, structure stability and thermal conductivity of La<sub>2</sub>B<sub>2</sub>O<sub>7</sub> (B=Ti, Zr, Sn, Hf) pyrochlore**

B. Liu\*, J. Wang, Y. Zhou, Institute of Metal Research, Chinese Academy of Sciences, China

**9:40 AM****Break****Modelling of Defects and Related Properties**

Room: English Bay

Session Chair: Isao Tanaka, Kyoto University

**10:00 AM****(PACRIM8-S02-004-2009) Behavior of nanoconfined water and enhanced hydronium ion formation (Invited)**

S. H. Garofalini\*, Rutgers University, USA

**10:20 AM****(PACRIM8-S02-005-2009) Atomic-level Modeling of Defects and Defect Processes in Ceramics**

R. Devanathan\*, J. Yu, W. J. Weber, Pacific Northwest National Laboratory, USA

**10:40 AM****(PACRIM8-S02-006-2009) Development of a ReaxFF potential for simulating chemistry on the water/solid interface (Invited)**

A. van Duin\*, Penn State, USA

**Design of New Ceramics**

Room: English Bay

Session Chair: Wai-Yim Ching, University of Missouri-Kansas City

**11:00 AM****(PACRIM8-S02-007-2009) Making high-temperature ceramics intrinsic "ductile" – Predictions from first-principles calculation (Invited)**

J. Wang\*, Y. Zhou, Institute of Metal Research, China

**11:20 AM****(PACRIM8-S02-008-2009) Theoretical and Experimental Studies Related to Phase Stability and Material Properties of Ti<sub>2</sub>AlC MAX Phase upon Oxygen Incorporation**

J. Rosen, A. Mockute\*, Thin Film Physics, Sweden

**11:40 AM****(PACRIM8-S02-009-2009) Mapping Nanostructure: Assembling nanobuilding blocks at crystallographic positions (Invited)**

D. C. Sayle\*, Cranfield University, United Kingdom

**Symposium 03: Novel, Green, and Strategic Processing and Manufacturing Technologies****Microwave and Green Manufacturing**

Room: Plaza B

Session Chairs: Tatsuki Ohji, National Institute of Advanced Industrial Science and Technology; Richard Sisson, Worcester Polytechnic Institute

**8:30 AM****(PACRIM8-S03-001-2009) Microwaves in Ceramic Manufacturing Processes (Invited)**

H. S. Shulman\*, M. L. Fall, S. M. Allan, Ceralink, Inc., USA

**9:00 AM****(PACRIM8-S03-002-2009) Translucent Alumina Prepared by Microwave Plasma Technique, and its Optical property**

K. Kijima\*, K.I.T., Japan; K. Hayashi, Takasago Inc, Japan; S. Obata, G.C.I., Japan

**9:20 AM****(PACRIM8-S03-003-2009) Microwave Sintering of Mullite and Mullite-Zirconia Composites**

A. Bandyopadhyay\*, S. Bodhak, S. Bose, Washington State University, USA

**9:40 AM****Break****10:00 AM****(PACRIM8-S03-004-2009) Strategic Ecomaterials Processing and Manufacturing Technologies Development (Invited)**

N. Zuoren\*, Z. Tiejong, Beijing University of Technology, China

**10:30 AM****(PACRIM8-S03-005-2009) Emissions Produced During Glass Melting and Fining: Analysis of Nitrate and Sulfate Decomposition (Invited)**

L. E. Jones\*, Smith College, USA

**11:00 AM****(PACRIM8-S03-006-2009) Incorporating Innovation, Sustainability, Global Awareness and Ethics into the Curriculum**

R. D. Sisson\*, J. C. O'Shaughnessy, Y. K. Rong, J. A. Bergendahl, G. Tryggvason, D. Apelian, Worcester Polytechnic Institute, USA

**11:20 AM****(PACRIM8-S03-007-2009) Exergy Analysis on Life Cycle of Ceramic Parts**

H. Kita, H. Hyuga, N. Kondo, T. Ohji\*, National Institute of Advanced Industrial Science and Technology, Japan

**Symposium 04: Polymer Derived Ceramics and Composites****Advanced Applications and Properties II**

Room: Plaza A

Session Chair: Philippe Miele, Universite de Lyon

**8:30 AM****(PACRIM8-S04-040-2009) The oxidation mechanism for polymer derived SiAlCN ceramics (Invited)**

Y. Wang\*, Northwestern Polytechnical University, China

**9:00 AM****(PACRIM8-S04-041-2009) Silicon Based Polymer-Derived Ceramics for High Temperature and Pressure Sensors**

L. Toma\*, R. Riedel, H. Hanselka, Technische Universität Darmstadt, Germany; J. Nuffer, Fraunhofer-Institut für Betriebsfestigkeit und Systemzuverlässigkeit, Germany; E. Janssen, Fraunhofer-Institut für Betriebsfestigkeit und Systemzuverlässigkeit, Germany

**9:20 AM****(PACRIM8-S04-042-2009) Polymer-Derived SiOC/ZrO<sub>2</sub> and SiOC/HfO<sub>2</sub> Ceramic Nanocomposites – Are They Suitable for High-Temperature Applications?**

E. Ionescu\*, B. Papendorf, C. Linck, R. Riedel, Technische Universität Darmstadt, Germany

**9:40 AM****Break****Nano-structures and Nano-composites**

Room: Plaza A

Session Chair: Florence Babonneau, Université Pierre et Marie Curie/Paris6

**10:00 AM****(PACRIM8-S04-043-2009) Polymer-derived Inorganic Nanowires and Nanotubes (Invited)**

V. Salles, M. Bechelany, S. Bernard, A. Brioude, Laboratoire des Multimateriaux et Interfaces (LMI), France; D. Cornu\*, Institut Européen des Membranes (IEM), France; P. Miele, Laboratoire des Multimateriaux et Interfaces (LMI), France

**10:30 AM****(PACRIM8-S04-044-2009) Elaboration of 0D Boron Nitride Nanostructures Using a Non-Oxide Molecular Route**

S. Bernard, V. Salles, M. Bechelany, A. Brioude, D. Cornu, P. Miele, J. Li\*, University Lyon 1, France

**10:50 AM****(PACRIM8-S04-045-2009) Polymer Derived Ceramics Produced by Microstructure Technologies**

S. Martinez-Crespiera\*, E. Ionescu, R. Riedel, Technische Universität Darmstadt, Germany

**11:10 AM****(PACRIM8-S04-046-2009) Carbon-Rich Polymer-Derived Silicon Carbonitride Ceramics**

G. Mera\*, R. Riedel, Technische Universität Darmstadt, Germany

**11:30 AM****(PACRIM8-S04-047-2009) Poly[(silylyne)ethynylene] and Poly[(silylene)ethynylene]: New Precursors for the Efficient Synthesis of Silicon Carbide**

S. Kyushin\*, H. Shiraiwa, M. Kubota, K. Negishi, Gunma University, Japan; K. Okamura, K. Suzuki, Advanced Institute of Materials Science, Japan

## Symposium 06: Synthesis and Processing of Materials by the Spark Plasma Method

### Fundamental Investigations on the SPS Process I

Room: Prince of Wales

Session Chairs: Javier Garay, University of California; Frédéric Bernard, Université de Bourgogne

**8:30 AM**

**(PACRIM8-S06-001-2009) Spark Plasma Sintering of ceramic powders: densification mechanisms and influence of the microstructure on the electrical and optical properties (Invited)**

G. Bernard-Granger\*, Saint-Gobain CREE, France

**9:00 AM**

**(PACRIM8-S06-002-2009) Study on pressure dependence of contact resistances in SPS process**

S. Grasso\*, Y. Sakka, National Institute for Materials Science (NIMS), Japan; G. Maizza, Politecnico di Torino, Italy

**9:20 AM**

**(PACRIM8-S06-003-2009) Impact of Temperature Gradients on Spark-Plasma Sintering (Invited)**

E. Olevsky\*, San Diego State University, USA

**9:50 AM**

Break

**10:10 AM**

**(PACRIM8-S06-004-2009) Modelling of Spark Plasma Sintering/Synthesis Process: Temperature, Current and Density Distribution**

A. M. Locci\*, A. Cincotti, R. Orrù, G. Cao, University of Cagliari, Italy

**10:30 AM**

**(PACRIM8-S06-005-2009) Main Recent Contributions to Spark Plasma Sintering from France (Invited)**

F. Bernard\*, Université de Bourgogne, France

**11:00 AM**

**(PACRIM8-S06-006-2009) Spark plasma sintering mechanisms in Si<sub>3</sub>N<sub>4</sub>-based materials**

M. Belmonte\*, J. Gonzalez-Julian, P. Miranzo, I. Osendi, Institute of Ceramics and Glass (CSIC), Spain

**11:20 AM**

**(PACRIM8-S06-007-2009) Microstructure and Sintering Kinetics of Nickel and Tungsten-Based Materials Consolidated By Spark Plasma Sintering**

M. Luke, J. B. Perkins\*, M. Frary, D. P. Butt, Boise State University, USA

## Symposium 07: Nanostructured Materials and Systems

### Nanomaterials: New Compositions and Architectures

Room: Balmoral

Session Chair: Bodh Mehta, Indian Institute of Technology Delhi

**8:30 AM**

**(PACRIM8-S07-041-2009) Nanoscale Structure-Property Correlation of Filled Carbon Nanotubes through Theory and Atomic Imaging**

E. Bichoutskaia\*, University of Nottingham, United Kingdom

**8:50 AM**

**(PACRIM8-S07-042-2009) A Simple Approach to Prepare  $\beta$ -SiC Nanowires through Reaction of Oxidized Large-Sized Si Powders and CH<sub>4</sub> Gas**

W. Khongwong\*, K. Yoshida, M. Imai, T. Yano, Tokyo Institute of Technology, Japan

**9:10 AM**

Break

**9:30 AM**

**(PACRIM8-S07-043-2009) Strategies for controlled assembly at the nanoscale (Invited)**

F. Rosei\*, INRS, Univ of Quebec, Canada

**10:00 AM**

**(PACRIM8-S07-044-2009) Controlled Organization of Gold Nanoparticles as Catalysts for ZnO Nanowire Growth**

H. Chen\*, T. Wu, X. Wang, Z. Zhang, Nanyang Technological University, Singapore

**10:20 AM**

**(PACRIM8-S07-045-2009) Role of nano-structured domain derived from organically modified silicate in electrocatalysis and electrochemical synthesis of polyaniline**

P. C. Pandey\*, D. S. Chauhan, V. Singh, Institute of Technology, Banaras Hindu University, India

**10:40 AM**

**(PACRIM8-S07-046-2009) Illustration of effective parameters on growth of ZnO micro/nanorods, on Borosilicate glass via hydrothermal process**

A. A. Nourbakhsh\*, Islamic Azad University, Shahreza Branch, Iran; H. Ghayoor, Islamic Azad University, Shahreza Branch, Iran; M. Nekobin, Islamic Azad University, Najaf Abad Branch, Iran; H. R. Rezaei, S. Mirdamadi, Iran University of Science and Technology, Iran

**11:00 AM**

**(PACRIM8-S07-047-2009) Formation of magnesioferrite spinel in Fe<sub>2</sub>O<sub>3</sub>-MgO nano composite prepared via precipitation route**

F. Golestanifard\*, A. Azhari, M. Sharif, A. Saberi, Iran University of Science and Technology, Iran

**11:20 AM**

**(PACRIM8-S07-048-2009) Lanthanide-based Nanostructures: Solvothermal Synthesis, Characterization and Cytotoxicity Studies**

E. Hemmer\*, Tokyo University of Science, Japan; S. Mathur, University of Cologne, Germany; Y. Kohl, H. Thielecke, Fraunhofer Institute for Biomedical Engineering, Germany

**11:40 AM**

**(PACRIM8-S07-049-2009) Hydroxyapatite Nanoparticles as Reinforcements for Composites as well as Adsorbers**

L. Manocha\*, S. Manocha, I. Disher, Sardar Patel University, India

## Symposium 11: Advances in Electroceramics

### Passive Components and Integration Technology / Single Crystal

Room: Regency A

Session Chairs: Jun Akedo, National Institute of Advanced Science and Technology; Zuo-Guang Ye, Simon Fraser University

**8:30 AM**

**(PACRIM8-S11-031-2009) Fabrication and Characterization of Inkjet Printed Alumina Thick film Dielectrics with Low-loss Resin Infiltration (Invited)**

J. Kim\*, H. Kim, Y. Yoon, E. Koo, Korea Institute of Ceramic Engineering & Technology, Korea, South

**9:00 AM**

**(PACRIM8-S11-032-2009) Recent Progresses in Multilayer Ceramic Devices (Invited)**

H. Takagi\*, Murata Mfg. Co., Ltd., Japan

**9:30 AM****(PACRIM8-S11-033-2009) Fabrication of Ceramic-Matrix Polymer Composite Thick Films for 3-D Integration without Sintering Processes Employing Aerosol Deposition Method**

S. Nam\*, H. Kim, H. Na, Kwangwoon University, Korea, South; Y. Yoon, J. Kim, Korea Institute of Ceramic Engineering and Technology, Korea, South

**9:50 AM****Break****10:10 AM****(PACRIM8-S11-034-2009) Embedded Active and Passive Technologies in PCB Application (Invited)**

J. Lee\*, S. Lee, M. Han, Y. Shin, B. Song, H. Jung, J. Park, Y. Kim, T. Jung, Samsung Electro-Mechanics, Co. Ltd., Korea, South

**10:40 AM****(PACRIM8-S11-035-2009) High Performance Piezoelectric Materials: A Review (Invited)**

T. Shrout\*, S. Zhang, Penn State University, USA

**11:10 AM****(PACRIM8-S11-036-2009) Defect-induced polarization switching in BiFeO<sub>3</sub> and PbTiO<sub>3</sub> single crystals (Invited)**

Y. Noguchi\*, Y. Kitanaka, M. Suzuki, M. Miyayama, The University of Tokyo, Japan

**11:40 AM****(PACRIM8-S11-037-2009) Piezoelectric Single Crystal PMN-PT: Field-induced Actuation at Temperature**

D. Payne\*, J. F. Carroll, University of Illinois at Urbana-Champaign, USA; J. Tian, P. Han, H. C. Materials, Corp., USA

**Symposium 14: Solid Oxide Fuel Cells and Hydrogen Technology****Oxygen Ion, Proton and Mixed Conductors; Mullite-type Bi<sub>2</sub>M<sub>4</sub>O<sub>9</sub> Phases I**

Room: Georgia B

Session Chairs: Wen-Cheng Wei, National Taiwan University; Scott Barnett, Northwestern Univ

**8:30 AM****(PACRIM8-S14-019-2009) Mullite-type Bi<sub>2</sub>M<sub>4</sub>O<sub>9</sub>/10: A new Class of Materials with Interesting Properties (Invited)**

H. Schneider\*, Institute of Crystallography, Germany

**9:00 AM****(PACRIM8-S14-020-2009) Colloidal processing of doped mullite-type Bi<sub>2</sub>M<sub>4</sub>O<sub>9</sub> and Bi-fluorite electrolytes for SOFC**

W. J. Wei\*, National Taiwan University, Taiwan; C. Weng, National Taiwan University, Taiwan; S. Chuang, National Taiwan University, Taiwan; H. Schneider, University of Cologne, Germany

**9:20 AM****(PACRIM8-S14-021-2009) Single Crystal Synthesis of Mullite-Type Bi<sub>2</sub>M<sub>4</sub>O<sub>9</sub>/10 Phases**

M. Burianek\*, M. Mühlberg, H. Schneider, University of Cologne, Germany

**9:40 AM****Break****10:00 AM****(PACRIM8-S14-022-2009) Atomistic simulation of diffusion and electric conduction process in fluorite-type ceramic electrolyte**

C. Huang\*, National Taiwan University, Taiwan; C. Chen, W. J. Wei, National Taiwan University, Taiwan

**10:20 AM****(PACRIM8-S14-023-2009) First principles study of oxygen diffusion in Bi<sub>2</sub>Ga<sub>4</sub>O<sub>9</sub> single crystal**

J. Chen\*, C. Wei, Academia Sinica, Taiwan

**10:40 AM****(PACRIM8-S14-024-2009) Surface Chemical Characterization Of Thermally Treated Mullite-Type Bi<sub>2</sub>Ga<sub>4</sub>O<sub>9</sub>, Bi<sub>2</sub>Fe<sub>4</sub>O<sub>9</sub> and Bi<sub>2</sub>Mn<sub>4</sub>O<sub>10</sub> Single Crystals**

F. Soria, Consejo Superior de Investigaciones Científicas, Spain; H. Schneider\*, Universitaet zu Koeln, Zuelpicher Str. 49b., Germany; J. Palomares, S. Moya, Consejo Superior de Investigaciones Científicas, Spain; M. Burianek, Universitaet zu Koeln, Zuelpicher Str. 49b., Germany; M. Muehlberg, Universitaet zu Koeln, Zuelpicher Str. 49b., Germany

**11:00 AM****(PACRIM8-S14-025-2009) Single crystal elastic and anelastic properties of mullite-type Bi<sub>2</sub>M<sub>4</sub>O<sub>9</sub> up to 1300 K**

J. Schreuer\*, T. F. Krenzel, Ruhr-University Bochum, Germany; M. Burianek, M. Mühlberg, H. Schneider, University of Cologne, Germany

**11:20 AM****(PACRIM8-S14-026-2009) Performance degrading interface reactions in SOFC and their solution**

C. Oncel\*, M. A. Gulgun, Sabanci University, Turkey

**11:40 AM****(PACRIM8-S14-027-2009) Oxygen Permeation of Ba<sub>0.5</sub>Sr<sub>0.5</sub>Co<sub>0.8</sub>Fe<sub>0.2</sub>O<sub>3-δ</sub>/Ce<sub>0.9</sub>Gd<sub>0.1</sub>O<sub>2-δ</sub> Nanocomposite Thin Film Membrane**

J. Yoon\*, H. Hwang, INHA University, Korea, South; J. Moon, Research Institute of Industrial Science and Technology, Korea, South

**Symposium 15: Direct Thermal to Electrical Energy Conversion Materials and Applications****Composite and Nanocomposite TE Materials**

Room: Regency B

Session Chair: Terry Tritt, Clemson University

**8:30 AM****(PACRIM8-S15-001-2009) Progress in TE material, TE device and TE-PV hybrid power generation system in China (Invited)**

Q. Zhang\*, Wuhan University of Technology, China

**9:00 AM****(PACRIM8-S15-002-2009) Development of High-Quality Thin Film Metal/Semiconductor Nanocomposites and the use of Electron Filtering Effects for Improved Thermoelectric Power Factor and Figure of Merit (Invited)**

J. M. Zide\*, University of Delaware, USA

**9:30 AM****Break****9:50 AM****(PACRIM8-S15-003-2009) Enhanced Power Factor in Nanocomposite Chalcogenides (Invited)**

G. S. Nolas\*, L. Woods, J. Martin, A. Popescu, University of South Florida, USA; L. Chen, Shanghai Institute of Ceramics, China

**Bulk TE Materials: Half Heusler Alloys**

Room: Regency B

Session Chair: Holger Kleinke, University of Waterloo

**10:40 AM****(PACRIM8-S15-005-2009) Half-Heusler compounds as advanced bulk thermoelectric materials (Invited)**

S. Yamanaka\*, K. Kurosaki, H. Muta, Osaka University, Japan

**11:10 AM****(PACRIM8-S15-006-2009) Defect engineering in Heusler compounds (Invited)**

R. Asahi\*, H. Hazama, H. Itahara, M. Matsubara, Toyota Central R&amp;D Labs., Inc., Japan

11:40 AM

**(PACRIM8-S15-007-2009) Thermoelectric properties of lanthanide-based *p*-type half-Heusler compounds**

K. Kurosaki\*, K. Kawano, H. Muta, S. Yamanaka, Osaka University, Japan

## Symposium 16: Ceramics for Electric Energy Generation, Storage, and Distribution

### Ceramics for Power Generation

Room: Oxford

Session Chairs: Hua-Tay Lin, Oak Ridge National Laboratory; Tom Troczynski, University of British Columbia

8:30 AM

**(PACRIM8-S16-001-2009) Recent Progress in Oxide Materials as a Promising Candidate for High-Temperature Thermoelectric Power Generation Applications (Invited)**

M. Ohtaki\*, Kyushu University, Japan

9:00 AM

**(PACRIM8-S16-002-2009) The Dynamic Characteristics of Ultrasonic Therapeutic Transducers Using Lead-Free Na<sub>0.5</sub>K<sub>0.5</sub>NbO<sub>3</sub> Based Ceramics (Invited)**

M. Yang, S. Chu\*, C. Tsai, C. Hong, National Cheng Kung University, Taiwan

9:20 AM

**(PACRIM8-S16-003-2009) Properties and Performance of Thin Circular Shape Wideband Piezoelectric Energy Harvester**

M. Leinonen\*, J. Palosaari, J. Juuti, H. Jantunen, University of Oulu, Finland

9:40 AM

Break

### Materials for Li-Ion Batteries

Room: Oxford

Session Chairs: Kuan-Zong Fung, National Cheng Kung University; Tohru Sekino, IMRAM, Tohoku Univ.

10:00 AM

**(PACRIM8-S16-004-2009) A challenging route towards 3D-integrated all-solid-state batteries (Invited)**

P. H. Notten\*, Eindhoven University of Technology, Netherlands

10:30 AM

**(PACRIM8-S16-005-2009) Enhancement of Capacity in LiFePO<sub>4</sub> by Controlling Amount of Phosphide (Invited)**

R. Liu\*, National Taiwan University, Taiwan

11:00 AM

**(PACRIM8-S16-006-2009) Interfacial Reaction between Perovskite-type La<sub>2/3-x</sub>Li<sub>3x</sub>TiO<sub>3</sub> and Metallic Lithium**

K. Yang, C. Ni, K. Fung\*, National Cheng Kung University, Taiwan

11:20 AM

**(PACRIM8-S16-007-2009) Graphite coated with SiCN ceramic: a way to increase capacity and to enhance discharging rate capability of negative electrode in lithium-ion batteries**

M. Graczyk-Zajac\*, C. Fasel, R. Riedel, Darmstadt Technical University, Germany

11:40 AM

**(PACRIM8-S16-008-2009) Compositional and Structural Properties and Ionic Conductivity of xLi<sub>2</sub>S+GeS<sub>2</sub>(x=2, 3 and 5) Thin Film Electrolytes Grown by RF Sputtering for Li-ion Rechargeable Batteries**

I. Seo\*, K. Lord, S. W. Martin, Iowa State University, USA

## Symposium 19: Glasses and Ceramics for Nuclear and Hazardous Waste Treatment

### Process Modeling and Waste Form Characterization and Analysis

Room: Plaza C

Session Chair: James Marra, Savannah River National Laboratory

8:40 AM

**(PACRIM8-S19-001-2009) Thermodynamic Modeling of Comparative Melt Rates**

A. Choi\*, Savannah River National Laboratory, USA

9:00 AM

**(PACRIM8-S19-002-2009) Computer Simulation of Energetic Recoil Damage in Nuclear Waste Forms and Inert Matrices**

R. Devanathan\*, W. J. Weber, Pacific Northwest National Laboratory, USA

9:20 AM

**(PACRIM8-S19-003-2009) Extended X-Ray Absorption Fine Structure (EXAFS) of Pu L-III Edge in LaBS Glass**

S. Stefanovsky\*, SIA Radon, Russia; A. A. Shiryayev, Institute of Crystallography RAS, Russia; J. V. Zubavitchus, A. A. Veligjanin, RRC Kurchatov Institute, Russia; J. Marra, Savannah River National Laboratory, USA

9:40 AM

Break

10:00 AM

**(PACRIM8-S19-004-2009) CaMoO<sub>4</sub> in a molybdenum rich borosilicate glass-ceramic: a spectroscopic study**

C. Mendoza\*, Université Lyon 1, France; I. Bardez-Giboire, S. Schuller, S. Peugot, CEA Valrhô-Marcoule, France; D. de Ligny, G. Panczer, Université Lyon 1, France

10:20 AM

**(PACRIM8-S19-005-2009) Role of zirconium content on gel stability during alteration of nuclear waste glasses**

L. Galois\*, Paris-Pierre et Marie Curie University; Denis Diderot University; IPGP and CNRS, France; B. Bergeron, CEA, France; G. Calas, Paris-Pierre et Marie Curie University; Denis Diderot University; IPGP and CNRS, France; P. Jollivet, CEA, France

10:40 AM

**(PACRIM8-S19-006-2009) Surface Analysis of the K-26 Borosilicate Glass after 20 Years of Storage**

A. S. Barinov, G. A. Variakova, I. V. Startseva, S. V. Stefanovsky\*, SIA Radon, Russia

## Symposium 20: Advances in Biomineralized Ceramics, Bioceramics, and Bioinspired Designs

### Surfaces, Biocompatibility and Bioactive Ceramics

Room: Georgia A

Session Chair: Po-Yu Chen, University of California, San Diego

8:30 AM

**(PACRIM8-S20-001-2009) Changing In Vitro Response of Bioactive Glass with Thermal and Mechanical Processing (Invited)**

J. A. Nychka\*, University of Alberta, Canada

9:00 AM

**(PACRIM8-S20-002-2009) Bioactive Glass as Substrates for Hard and Soft Tissue Repair (Invited)**

M. N. Rahaman\*, Missouri University of Science and Technology, USA

9:30 AM

**(PACRIM8-S20-003-2009) Novel Deposition of Silicon Substituted Hydroxyapatite Coating by Aerosol Deposition**

B. Hahn\*, D. Park, J. Lee, J. Choi, J. Ryu, W. Yoon, B. Lee, Korea Institute of Materials Science, Korea, South; H. Kim, Seoul National University, Korea, South



9:50 AM

Break

10:10 AM

**(PACRIM8-S20-004-2009) Recent Research on Composition Dependence of the Properties of Bioactive Glasses**

L. Hupa\*, M. Hupa, Åbo Akademi University, Finland

10:30 AM

**(PACRIM8-S20-005-2009) Antibacterial Ag-doped glass-ceramic scaffolds**

E. Verne\*, M. Miola, C. Balagna, S. Ferraris, Politecnico di Torino, Italy; G. Fucale, G. Maina, C.T.O Maria Adelaide Hospital, Italy; R. Canuto, Turin University, Italy; S. Saracino, Turin University, Italy; G. Muzio, Turin University, Italy; C. Vitale Brovarone, Politecnico di Torino, Italy

10:50 AM

**(PACRIM8-S20-006-2009) Hydrothermal Synthesis and Characterization of Dandelion-like Hydroxyapatite using Templates**

M. Salarian\*, School of Materials Engineering, Science and Research Branch, Islamic Azad University, Tehran, Iran, Iran; M. Solati-Hashjin, S. Shafiei, A. Goudarzi, R. Salarian, A. Nemat, Biomaterial Group, Faculty of Biomedical Engineering, Amirkabir University of Technology, Tehran, Iran, Iran

11:10 AM

**(PACRIM8-S20-007-2009) Silicon-Substituted Hydroxyapatite Synthesized by a Hydrothermal Method**

A. Aminian\*, M. Solati-Hashjin, F. Bakhsht, A. Farzadi, Amirkabir University of Technology, Iran

11:30 AM

**(PACRIM8-S20-008-2009) Formation of Bioactive Ceramic Layer on Bulk Metallic Glass by Novel Growing Integration Layer [GIL] Method Using Electrochemistry in Solution (Invited)**

M. Yoshimura\*, N. Sugiyama, N. Matsushita, Tokyo Institute of Technology, Japan; X. Wang, T. Wada, F. Qin, A. Inoue, Tohoku University, Japan; M. Tsukamoto, Osaka University, Japan; M. Naito, Osaka University, Japan

**Symposium 23: Glass Science****Glass Surface and Nanostructured Glasses**

Room: Grouse

Session Chair: Rui Almeida, Instituto Superior Tecnico

8:30 AM

**(PACRIM8-S23-049-2009) Enhancement of the Er<sup>3+</sup> Luminescence by Few-Atom Metal Aggregates (Invited)**

P. Mazzoldi\*, M. Giovanni, University of Padova, Italy; M. Chiara, INFN, France; B. Valentina, P. Giovanni, T. Enrico, University of Padova, Italy; G. Battaglin, Università Ca' Foscari Venezia, Italy

9:00 AM

**(PACRIM8-S23-051-2009) Growth of cookie-like Au/NiO nanoparticles in SiO<sub>2</sub> sol-gel films and their optical gas sensing properties**

A. Martucci\*, E. Della Gaspera, M. Ggulielmi, G. Mattei, P. Mazzoldi, Università di Padova, Italy; M. Post, National Research Council of Canada, Canada

9:20 AM

**(PACRIM8-S23-052-2009) Indium Nanocrystal Formation in Glasses**

J. S. Rich\*, J. E. Shelby, Alfred University, USA

9:40 AM

Break

10:00 AM

**(PACRIM8-S23-053-2009) Extraordinary Laser-Induced Swelling of Glasses**

S. L. Logunov\*, R. R. Grzybowski, A. M. Streltsov, D. E. James, S. S. James, J. F. Schroeder, Corning Incorporated, USA

10:20 AM

**(PACRIM8-S23-054-2009) Sequential chemical nano-etching of glass with low concentrated HF/HNO<sub>3</sub>**

P. Djmbazov\*, A. Prange, R. Conrad, RWTH Aachen University, Germany

10:40 AM

**(PACRIM8-S23-055-2009) Inward Cationic Diffusion in Polyvalent Ion-Containing Silicate Glasses**

M. M. Smedskjaer\*, Y. Yue, Aalborg University, Denmark

11:00 AM

**(PACRIM8-S23-056-2009) A Molecular Level Picture of Reactive Surface Sites on Amorphous Aluminosilicates**

N. Washton\*, PPG Industries, Inc, USA; K. T. Mueller, Penn State University, USA

11:20 AM

**(PACRIM8-S23-057-2009) Glassy Scaffolds with Tailored Nano/macroporosity for Bone Tissue Engineering**

A. Gama, Y. Vueva, R. Almeida\*, Instituto Superior Tecnico, Portugal

**Non-oxide Glasses I**

Room: Cypress

Session Chair: S. Sundaram, Pacific Northwest National Laboratory

8:30 AM

**(PACRIM8-S23-032-2009) Optimizing Glass Networks (Invited)**

J. C. Phillips\*, Rutgers, USA

9:00 AM

**(PACRIM8-S23-033-2009) Network vs. Molecular Structural Characteristics of As-rich Ge-As Sulfide Glasses: A Combined Neutron/X-ray Diffraction, EXAFS and Raman Spectroscopic Study**

S. Soyer Uzun\*, S. Sen, University of California, Davis, USA; B. G. Aitken, Corning Incorporated, USA

9:20 AM

**(PACRIM8-S23-034-2009) Electrical anomalies in As-Se-Te and As-Se-(I) glasses at ~250-285K**

J. V. Ryan\*, T. C. Droubay, Pacific Northwest National Laboratory, USA; L. Burka, Clemson University, USA; B. J. Riley, B. R. Johnson, Pacific Northwest National Laboratory, USA

9:40 AM

Break

10:00 AM

**(PACRIM8-S23-035-2009) Rigidity in Network Glasses at a Molecular Level (Invited)**

M. Micoulaut\*, University Paris 6, France

10:30 AM

**(PACRIM8-S23-039-2009) Processing and Characterization of Active and Passive Oxysulfide Bulk and Thin Film Glasses for Optical Applications: A Review (Invited)**

K. Richardson\*, L. Petit, C. Smith, Clemson University, USA

11:00 AM

**(PACRIM8-S23-037-2009) Self-organization in network glasses (Invited)**

P. Boolchand\*, B. Goodman, P. Chen, D. I. Novita, University of Cincinnati, USA

11:30 AM

**(PACRIM8-S23-038-2009) Phase Change Alloys: A Challenge for our Understanding of Amorphous and Crystalline Materials (Invited)**

M. Wuttig\*, RWTH Aachen University, Germany

## Symposium 24: Glass Technology, Energy and Environment

### Part I: The Future of Glass Strength - An Industry Changing Symposium

Room: Stanley

Session Chair: Michael Greenman, GMIC

**8:15 AM**

Introductory Comments

**8:20 AM**

**(PACRIM8-S24-032-2009) Development of High Strength Fiberglass Compositions and their Applications to Address Current Global Issues (Invited)**

D. Hartmann\*, P. McGinnis, Owens-Corning Fiberglass, USA

**9:00 AM**

**(PACRIM8-S24-033-2009) Issues and Opportunities in the Development of High Strength Glass Containers (Invited)**

E. Spinosa\*, O-I, USA

**9:40 AM**

Break

**10:00 AM**

**(PACRIM8-S24-034-2009) Post-forming Methods to Increase the Strength of Glass (Invited)**

A. Ellison\*, Corning Incorporated, USA

**10:40 AM**

**(PACRIM8-S24-035-2009) Role of Coatings and Other Surface Treatments in the Strength of Glass (Invited)**

C. Pantano\*, Penn State U., USA

**11:20 AM**

**(PACRIM8-S24-036-2009) Improvement of Fracture Toughness of Glass by a Surface-modifying Coating (Invited)**

R. Budakoglu, B. Yoldas\*, SISECAM Glass Research Center, Turkey

## Symposium 25: Glasses for Optoelectronic and Optical Applications

### Photosensitivity in Glasses

Room: Seymour

Session Chair: Norman Anheier, Pacific Northwest National Laboratory

**8:30 AM**

**(PACRIM8-S25-030-2009) Planar Chalcogenide Glass Microcavities: A Versatile Device Platform (Invited)**

J. Hu\*, Massachusetts Institute of Technology, USA; N. Carlie, L. Petit, B. Zdyrko, Clemson University, USA; A. Agarwal, Massachusetts Institute of Technology, USA; I. Luzinov, K. Richardson, Clemson University, USA; L. C. Kimerling, Massachusetts Institute of Technology, USA

**9:00 AM**

**(PACRIM8-S25-032-2009) Viscoelastic photo-induced mechanical behaviour of Ge-Se glass fibers**

Y. Gueguen\*, J. Sangleboeuf, V. Kerywin, T. Rouxel, C. Boussard-Pledel, J. Troles, B. Bureau, E. Lepine, University of Rennes, France; P. Lucas, University of Arizona, USA

**9:20 AM**

**(PACRIM8-S25-033-2009) Measurement of the Refractive Index of Chalcogenide Thin Films using Prism Coupling in the Near and Mid-Infrared (Invited)**

N. A. Carlie\*, Clemson University, USA; N. C. Anheier, A. Qiao, B. E. Bernacki, M. C. Phillips, Pacific Northwest National Lab, USA; K. A. Richardson, L. Petit, Clemson University, USA

**9:50 AM**

Break

**10:10 AM**

**(PACRIM8-S25-034-2009) Sub-micron imaging of photoinduced refractive index pattern in chalcogenide glass**

P. Lucas\*, University of Arizona, USA; N. C. Anheier, H. A. Qiao, PNNL, USA; Z. Yang, University of Arizona, USA

**10:30 AM**

**(PACRIM8-S25-035-2009) Positive and negative refractive index changes in the bulk of As<sub>2</sub>S<sub>3</sub> glass by femtosecond laser writing**

P. Masselin\*, D. Le Coq, E. Bychkov, University of Littoral, France

**10:50 AM**

**(PACRIM8-S25-036-2009) Electronic Structure of UV Induced OH-Related Defects in Silica Glass**

M. Mlejnek\*, S. Kuchinsky, Corning, Inc., USA

## Symposium 02: Computational Approaches in Materials Research and Design

### Electronic Structure and Phase Stability

Room: English Bay

Session Chair: Jingyang Wang, Institute of Metal Research

**1:20 PM**

**(PACRIM8-S02-010-2009) Exploring structures and phase relationships of ceramics at finite temperatures from first principles (Invited)**

I. Tanaka\*, Kyoto University, Japan

**1:50 PM**

**(PACRIM8-S02-011-2009) Vibration States and Local Modes of Superhard Materials (Invited)**

J. E. Lowther\*, University of the Witwatersrand, South Africa

**2:20 PM**

**(PACRIM8-S02-012-2009) Unified Interatomic Potential for Zircon, Zirconia and Silica**

J. Yu\*, R. Devanathan, W. J. Weber, Pacific Northwest National Laboratory, USA

**2:40 PM**

Break

## Improvement of the Performance of Ceramics and Composites

Room: English Bay

Session Chair: John Lowther, University of the Witwatersrand

**3:20 PM**

**(PACRIM8-S02-013-2009) Computer Simulation, Prediction and Design of Glasses (Invited)**

L. Huang\*, Rensselaer Polytechnic Institute, USA

**3:40 PM**

**(PACRIM8-S02-014-2009) Modeling of Degradation of Silicon Nitride due to Migration of Yb<sup>3+</sup> ions in an Electric Field**

H. Karimi Sharif\*, C. Oprea, F. Wong, University of British Columbia, Canada; A. Welch, C. Blair, Westport Innovations Inc., Canada; T. Troczynski, University of British Columbia, Canada

**4:00 PM**

**(PACRIM8-S02-015-2009) Simulations to enhance understanding of the structure and properties of plasma deposited materials (Invited)**

M. Bilek\*, O. Warschkow, M. F. Cover, D. R. McKenzie, University of Sydney, Australia

4:20 PM

Sanjay Khare  
U. of Toledo**Optimization of Properties and Process**

Room: English Bay

Session Chair: Dean Sayle, Cranfield University

4:40 PM

**(PACRIM8-S02-016-2009) The role of mass transport in layer-by-layer growth (Invited)**

V. Chirita\*, LiU, Sweden

5:00 PM

**(PACRIM8-S02-017-2009) Atomic Scale Understanding of Surface Structure Evolution by Ion Bombardment Using Molecular Dynamics Simulation**

S. Kim, B. Kim, K. Lee\*, Korea Institute of Science and Technology, Korea, South

5:20 PM

**(PACRIM8-S02-018-2009) Modeling Dual and MgO Saturated EAF Slag Chemistry**

K. Kwong\*, J. Bennett, R. Krabbe, A. Petty, H. Thomas, NETL, US DOE, USA

5:40 PM

**(PACRIM8-S02-019-2009) Study of the Phase Diagrams for Chemical Vapor Deposition of BCl<sub>3</sub>-CH<sub>4</sub>-H<sub>2</sub> System**

S. Liu\*, L. Zhang, Y. Liu, X. Yin, L. Cheng, National Key Laboratory of Thermostructure Composite Materials, Northwestern Polytechnical University, China

**Symposium 03: Novel, Green, and Strategic Processing and Manufacturing Technologies****Coating and Aqueous Synthesis**

Room: Plaza B

Session Chairs: Takashi Goto, Institute for Materials Research; Omer Van der Biest, K.U. Leuven

1:20 PM

**(PACRIM8-S03-009-2009) Low Temperature Coating of  $\alpha$ -Al<sub>2</sub>O<sub>3</sub> Films on Cutting Tools by Laser CVD for W Substitution (Invited)**

T. Goto\*, H. Kadokura, T. Kimura, Institute for Materials Research, Japan

1:50 PM

**(PACRIM8-S03-010-2009) High Density Ceramic Film Formation with RTIC Phenomenon on Aerosol Deposition Process (Invited)**

J. Akedo\*, H. Ogiso, M. Yoshida, National Institute of Advanced Science and Technology, Japan

2:20 PM

**(PACRIM8-S03-011-2009) ITO Large Size Planar and Rotary Sputtering Targets and Thin Films (Commercialization, Manufacturing and Properties)**

E. Medvedovski\*, C. J. Szepesi, O. Yankov, P. Lippens, Umicore Indium Products, USA

2:40 PM

**(PACRIM8-S03-012-2009) Aqueous Electrophoretic Deposition by Using Shaped AC Electric Fields (S-AC-EPD) (Invited)**

O. Van der Biest\*, B. Neirinck, J. Franssaer, J. Vleugels, K.U. Leuven, Belgium

3:10 PM

Break

3:30 PM

**(PACRIM8-S03-013-2009) Synthesis and properties of glassy mesoporous SiO<sub>2</sub> in the freshwater sponge Cauxi**

R. Keding\*, M. Jensen, Ålborg University, Denmark; T. Höche, Leibniz Institut for Surface Modification, Germany; Y. Yue, Aalborg University, Denmark

3:50 PM

**(PACRIM8-S03-024-2009) Effects of Polyethylenimine on Morphology and Property of ZnO Films Grown in Aqueous Solution**

X. Hu, Y. Masuda\*, T. Ohji, K. Kato, National Institute of Advanced Industrial Science and Technology (AIST), Japan

4:10 PM

**(PACRIM8-S03-014-2009) Preparation of perovskite oxide thin films by a novel hydrothermal-galvanic couple technique**

F. Lu\*, P. Chan, C. Yu, H. Teng, National Chung Hsing University, Taiwan

4:30 PM

**(PACRIM8-S03-015-2009) Idle Time and Gelation Behavior in Gelcasting Process of PSZ, in Acrylamide System**

N. Sahranei Khanghah, M. Faghihi-Sani\*, Sharif University of Technology, Iran

**Symposium 04: Polymer Derived Ceramics and Composites****Coatings**

Room: Plaza A

Session Chair: Michael Scheffler, Brandenburg Technical University

1:20 PM

**(PACRIM8-S04-048-2009) Perhydropolysilazane as the Source of Siloxane Skeleton in Silica and Organic-Silica Hybrid Coatings (Invited)**

H. Kozuka\*, A. Yamano, T. Kawamura, T. Ryoke, Kansai University, Japan

1:50 PM

**(PACRIM8-S04-049-2009) Nanostructured ceramic coatings on metals**

M. Kappa\*, A. Kebianior, M. Scheffler, Brandenburg Technical University (BTU) Cottbus, Germany

2:10 PM

**(PACRIM8-S04-050-2009) Mechanical properties of particle reinforced polymer derived ceramic coating on Fe- and Ni-based substrates**

K. Wang\*, R. K. Bordia, University of Washington, USA

2:30 PM

**(PACRIM8-S04-051-2009) Polyhydrosiloxanes as Versatile Precursors to Durable Coatings and Structural Ceramics**

Y. Blum\*, SRI International, USA

2:50 PM

**(PACRIM8-S04-052-2009) Intense white luminescence from SiOC ceramics containing Si, C and SiC clusters**

A. Karakuscu\*, R. Guider, L. Pavesi, G. Soraru\*, university of trento, Italy

3:10 PM

**(PACRIM8-S04-053-2009) Nano-ordered Ceramics from Polymer Precursors (Invited)**

J. Wan\*, P. Malenfant, GE Global Research Center, USA; S. Taylor, Northrop Grumman Space Technology, USA; M. Manoharan, GE Global Research Center, USA

**Symposium 06: Synthesis and Processing of Materials by the Spark Plasma Method****Fundamental Investigations on the SPS Process II**

Room: Prince of Wales

Session Chair: Eugene Olevsky, San Diego State University

1:20 PM

**(PACRIM8-S06-008-2009) Issues in the upscaling of the SPS technology**

O. Van der Biest\*, K. Vanmeensel, S. Huang, J. Vleugels, A. Laptev, K.U. Leuven, Belgium

**1:40 PM****(PACRIM8-S06-009-2009) Spark plasma sintering of transparent polycrystalline pure alumina: An experimental design approach**

Y. Aman\*, V. Garnier, MATEIS INSA Lyon, France; E. Djurado, LEPMI INP Grenoble, France

**2:00 PM****(PACRIM8-S06-010-2009) Effects of Pressure Application Procedure on the SPS Process**

J. Garay\*, J. R. Morales, J. E. Alaniz, C. Hardin, A. Dupuy, University of California, USA

**2:20 PM****(PACRIM8-S06-011-2009) Direct comparison between hot pressing and field assisted sintering of 8Y-SZ**

J. Langer\*, TU Darmstadt, Germany; M. J. Hoffmann, TH Karlsruhe, Germany; O. Guillon, TU Darmstadt, Germany

**2:40 PM****(PACRIM8-S06-012-2009) Spark-Plasma-Sintering (SPS) Processing of High Strength Transparent MgAl<sub>2</sub>O<sub>4</sub> Spinel Polycrystals**

K. Morita\*, B. Kim, H. Yoshida, K. Hiraga, National Institute for Materials Science, Japan

**3:00 PM****Break**

## Nanostructured Materials/Properties of SPS Densified Materials

Room: Prince of Wales

Session Chairs: Yuri Grin, Max-Planck-Institut fuer Chemische Physik fester Stoffe; Olivia Graeve, Alfred University

**3:20 PM****(PACRIM8-S06-013-2009) SPS Processing of Functional Ceramics; Na<sub>0.5</sub>K<sub>0.5</sub>NbO<sub>3</sub> and Zn<sub>4</sub>Sb<sub>3</sub> (Invited)**

M. Nygren\*, Stockholm University, Sweden

**3:50 PM****(PACRIM8-S06-014-2009) Exploring Powder Particle Size/Grain Size Correlations During Spark Plasma Sintering of Oxide Nanoparticles Prepared by Reverse Micelle Synthesis (Invited)**

O. A. Graeve\*, B. C. Williams, Alfred University, USA; S. Diaz de la Torre, Instituto Politecnico Nacional, Mexico

**4:20 PM****(PACRIM8-S06-015-2009) Sintering and Properties of Nanometric Functional Oxides**

D. Quach, Z. A. Munir\*, S. Kim, Univ. of California, USA; M. Martin, RWTH Aachen University, Germany

**4:40 PM****(PACRIM8-S06-016-2009) Fabrication of dense Zr-, Hf- and Ta-based Ultra High Temperature Ceramics by the combination of Self-propagating High-temperature Synthesis and Spark Plasma Sintering**

R. Licheri, R. Orru, C. Musa, A. M. Locci\*, G. Cao, University of Cagliari, Italy

**5:00 PM****(PACRIM8-S06-017-2009) Microstructure and Optical Properties in Transparent Alumina Prepared by Spark Plasma Sintering**

B. Kim\*, K. Hiraga, K. Morita, H. Yoshida, National Institute for Materials Science, Japan

**5:20 PM****(PACRIM8-S06-018-2009) Effect of semiconductive TiC and TiN nano powders on anisotropic grain growth of ultrafine  $\beta$ -Si<sub>3</sub>N<sub>4</sub> by spark plasma sintering technique**

C. Lee\*, National Cheng-Kong University, Taiwan; H. Lu, National Chin-Yi Institute of Technology, Taiwan; J. Huang, National Cheng-Kong University, Taiwan

## Symposium 10: Geopolymers - Low Energy and Environmentally Friendly Ceramics

### Geopolymer I

Room: Balmoral

Session Chairs: Arie van Riessen, Curtin University; Dan Perera, ANSTO

**1:20 PM****(PACRIM8-S10-009-2009) Microstructure and Mechanical Properties of Leucite Glass-Ceramics Converted from Potassium-based Geopolymer (Invited)**

N. Xie, Harbin Institute of Technology, China; J. L. Bell, W. M. Kriven\*, University of Illinois at Urbana-Champaign, USA

**1:50 PM****(PACRIM8-S10-002-2009) Synthesis of New Inorganic Polymers (Geopolymers) for Advanced Materials Applications (Invited)**

K. MacKenzie\*, Victoria University, New Zealand

**2:20 PM****(PACRIM8-S10-003-2009) Effects of the Foaming Agents and Modifiers on the Foamed-Geopolymer**

T. Chang\*, C. Chou, Y. Chen, Industrial Technology Research Institute, Taiwan

**2:40 PM****(PACRIM8-S10-004-2009) Thermal Properties of Geopolymer Materials based on K<sub>2</sub>O-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> systems: Correlation between Microstructural Evolution and Mechanical Behaviour**

E. Kameau, C. Leonelli\*, University of Modena and Reggio Emilia, Italy; V. Catania, V. Sglavo, Università degli studi di Trento, Italy

**3:00 PM****Break****3:20 PM****(PACRIM8-S10-005-2009) Mechanical Properties of Geopolymers Made from Different Precursors (Invited)**

D. Perera\*, B. Latella, M. Blackford, J. Davis, Y. Sasaki, ANSTO, Australia

**3:50 PM****(PACRIM8-S10-006-2009) Testing of Geopolymer Mortar Properties for Using as a Repair Material (Invited)**

W. Yodsudjai\*, P. Suwanvitaya, W. Pikulprayong, B. Taweessappaiboon, Kasetsart University, Thailand

**4:20 PM****(PACRIM8-S10-007-2009) Porous properties and water retention properties of geopolymers for counteracting heat island effects (Invited)**

K. Okada\*, A. Ooyama, T. Isobe, Y. Kameshima, A. Nakajima, Tokyo Institute of Technology, Japan

**4:50 PM****The Aging Process of Alkali Activated Metakaolin**

C. H. Rüscher, E. Mielcarek, Leibniz University of Hannover, Germany; W. Lutz, A. Ritzmann, Süd-Chemie Zeolites GmbH Labor, Germany; W. M. Kriven\*, University of Illinois at Urbana-Champaign, USA

**5:10 PM****Discussion Period**

## Symposium 11: Advances in Electroceramics

### Optical Properties of Ceramics & Applications / Dielectric Materials & Applications

Room: Regency A

Session Chairs: Jun Akedo, National Institute of Advanced Science and Technology; Hong Wang, Xi'an Jiaotong University

**1:20 PM**

**(PACRIM8-S11-038-2009) Terahertz Wave Harmonization in Geometrically Patterned Dielectric Ceramics through Spatially Structural Joining**

S. Kirihara\*, T. Niki, M. Kaneko, Osaka University, Japan

**1:40 PM**

**(PACRIM8-S11-039-2009) Electro-Optical Ceramic Film for On-Chip Optical Interconnect (Invited)**

K. Ohashi\*, M. Nakada, T. Shimizu, NEC / MIRAI-Selete, Japan; J. Akedo, H. Tsuda, J. Park, AIST, Japan

**2:10 PM**

**(PACRIM8-S11-040-2009) Optical Transparency of Dielectric Films Prepared by Aerosol Deposition**

H. Tsuda\*, J. Akedo, National Institute of Advanced Industrial Science and Technology, Japan; M. Nakada, K. Ohashi, NEC Corp./MIRAI-Selete, Japan

**2:30 PM**

**(PACRIM8-S11-041-2009) Development of Electrooptical Plasmonic Nanocomposite Systems for Application to High-Speed Optical Switches**

J. Park\*, J. Akedo, National Institute of Advanced Industrial Science and Technology (AIST), Japan; M. Nakada, NEC-Selete, Japan

**2:50 PM**

Break

**3:10 PM**

**(PACRIM8-S11-042-2009) Resistance Switching Effect in Pt/MgZnO/Pt Devices for Nonvolatile Memory Applications (Invited)**

D. Bao\*, Sun Yat-Sen University, China

**3:40 PM**

**(PACRIM8-S11-043-2009) The Effect of Interfacial Polarization on Energy Storage in Composite Dielectrics**

M. Pan\*, E. P. Gorzkowski, Naval Research Laboratory, USA

**4:00 PM**

**(PACRIM8-S11-044-2009) Influence of Co-Ti Substitution on the Dielectric Properties of Barium Hexaferrite**

P. Shepherd\*, K. K. Mallick, University of Warwick, United Kingdom

**4:20 PM**

**(PACRIM8-S11-045-2009) Effect of Templating the Directional Freezing Process to Create Ceramic-Polymer Dielectric Composites**

E. Gorzkowski\*, M. Pan, Naval Research Lab, USA

**4:40 PM**

**(PACRIM8-S11-046-2009) Powder Annealing Effect on Electrical Properties of BST Thick Films Fabricated by Aerosol Deposition for Multilayered Capacitor Structure Applications**

D. Popovici\*, H. Tsuda, J. Akedo, Natl. Inst. of Advanced Industrial Science and Technology, Japan

**5:00 PM**

**(PACRIM8-S11-047-2009) Influence of Ca concentration in (Ba,Ca)TiO<sub>3</sub> based ceramics on the reliability of MLCCs with Ni electrodes**

J. Ikeda\*, S. Suzuki, T. Takeda, A. Ando, H. Takagi, Murata Manufacturing Co.,Ltd, Japan

**5:20 PM**

**(PACRIM8-S11-048-2009) Fractal Microstructure and Dielectric Properties of BaTiO<sub>3</sub>-Ceramics Doped with Rare Earth Additives (Invited)**

V. Mitic\*, Institute of Technical Science of SASA, Serbia; L. Kocic, V. Paunovic, University of Nis, Serbia; V. Pavlovic, University of Belgrade, Serbia; L. Zivkovic, University of Nis, Serbia

**5:50 PM**

**(PACRIM8-S11-049-2009) A Dielectric and Ferroelectric Solid Solution of (1-x)BaSnO<sub>3</sub>-xPbTiO<sub>3</sub> with Morphotropic Phase Boundary**

X. Long\*, Fujian Institute of Research on the Structure of Matter, CAS, China; Z. Ye, Simon Fraser University, Canada

## Symposium 14: Solid Oxide Fuel Cells and Hydrogen Technology

### Oxygen Ion, Proton and Mixed Conductors; Conduction Mechanisms, Materials Limitations II

Room: Georgia B

Session Chair: Wen-Cheng Wei, National Taiwan University

**1:20 PM**

**(PACRIM8-S14-028-2009) Effect of dopant addition on the structure stability and microstructure evolution of bismuth oxide based electrolytes exposed to reducing atmosphere (Invited)**

C. Hsieh, K. Fung\*, National Cheng Kung University, Taiwan

**1:50 PM**

**(PACRIM8-S14-029-2009) Materials Characteristics of Gadolinia-Doped Ceria Thin Films by RF Reactive Sputtering of CeGd Alloy Target in O<sub>2</sub>/Ar Gas Mixtures**

Y. Kuo\*, Tatung University, Taiwan; Y. Chen, H. Liang, C. Lee, National Taiwan University of Science and Technology, Taiwan

**2:10 PM**

**(PACRIM8-S14-030-2009) Cation diffusion in perovskite materials**

T. Grande\*, NTNU, Norway

**2:30 PM**

**(PACRIM8-S14-031-2009) Size effect on structure and transport in solid-oxide electrolytes: results from high-resolution multinuclear NMR spectroscopy**

P. Jain\*, S. Sen, H. Avila-Paredes, S. Kim, UC Davis, USA

**2:50 PM**

Break

**3:10 PM**

**(PACRIM8-S14-032-2009) Fast oxygen ion conduction in solids – A new microscopic view (Invited)**

J. Drennan\*, The University of Queensland, Australia; T. Mori, National Institute for Materials Science, Japan

**3:40 PM**

**(PACRIM8-S14-033-2009) Investigation of new SOFC cathode materials: structure, performance and chemical reactivity (Invited)**

S. Skinner\*, Imperial College, United Kingdom

**4:00 PM**

**(PACRIM8-S14-034-2009) Improving the Performance of Perovskite-Type High Temperature Protonic Conductors for Intermediate Temperature Solid Oxide Fuel Cells**

E. Fabbri, D. Pergolesi, National Institute for Materials Science (NIMS), Japan; A. D'Epifanio, E. Di Bartolomeo, S. Licocchia, E. Traversa\*, Univ. Roma Tor Vergata, Italy

**4:20 PM**

**(PACRIM8-S14-035-2009) Mixed crystal formation and stability of the phases in the sequence Bi<sub>2</sub>Fe<sub>4</sub>O<sub>9</sub> – Bi<sub>2</sub>Mn<sub>4</sub>O<sub>10</sub>**

M. W. Lufaso\*, J. T. Auletta, E. W. Hearn, M. L. Romans, University of North Florida, USA

## Materials and Technologies for Hydrogen Production, Storage, Transportation and Safety

Room: Georgia B

Session Chair: Fatih Dogan, Missouri University of Science and Technology

**4:40 PM**

**(PACRIM8-S14-036-2009) Fuel Cell and Hydrogen Infrastructure Development at the Missouri University of Science and Technology (Invited)**

F. Dogan\*, S. Grasman, J. Sheffield, Missouri University of Science and Technology, USA

**5:00 PM**

**(PACRIM8-S14-037-2009) Solar Thermal Production of H<sub>2</sub> Using Fe<sub>2</sub>O<sub>3</sub>-YSZ Materials**

T. Gärino\*, N. Siegel, J. Miller, L. Evans, S. Livers, Sandia National Laboratories, USA

**5:20 PM**

**(PACRIM8-S14-042-2009) Processing and Creep Behavior of Multi-layered Cofired Glass for Gas Channel Application in Solid Oxide Fuel Cell**

C. S. Chang\*, National Taiwan University, Taiwan; W. J. Wei, National Taiwan University, Taiwan; C. Hsueh, National Taiwan University, Taiwan

## Symposium 15: Direct Thermal to Electrical Energy Conversion Materials and Applications

### New TE Materials

Room: Regency B

Session Chair: George Nolas, University of South Florida

**1:20 PM**

**(PACRIM8-S15-008-2009) Intermetallic Alloys with High Thermoelectric Power Factor (Invited)**

D. Morelli\*, E. Skoug, C. Zhou, Y. Pei, Michigan State University, USA

**1:50 PM**

**(PACRIM8-S15-009-2009) Enhanced High-Temperature Thermoelectric Performance of the Zintl Phase, Yb<sub>14</sub>MnSb<sub>11</sub>, by Chemical Substitutions (Invited)**

S. Kauzlarich\*, UC Davis, USA

**2:20 PM**

**(PACRIM8-S15-010-2009) Two-dimensional Seebeck Coefficient of Electric Field Induced Electrons in a SrTiO<sub>3</sub>-based Transistor (Invited)**

H. Ohta\*, A. Yoshikawa, D. Kurita, K. Koumoto, Nagoya University, Japan; R. Asahi, Y. Masuoka, Toyota Central R&D Laboratories, Japan; K. Nomura, Japan Science and Technology Agency, Japan; H. Hosono, Tokyo Institute of Technology, Japan

**2:50 PM**

**(PACRIM8-S15-011-2009) High thermoelectric properties in LSCuO perovskites**

J. Rodríguez\*, Universidad Nacional de Colombia, Colombia

**3:10 PM**

Break

### TE Materials & Applications

Room: Regency B

Session Chair: Ryoji Funahashi, AIST Japan

**3:30 PM**

**(PACRIM8-S15-012-2009) Advanced Thermoelectric Materials for Radioisotope Thermoelectric Generators for Space Power Applications (Invited)**

T. Caillat\*, Jet Propulsion Laboratory/California Institute of Technology, USA

**4:00 PM**

**(PACRIM8-S15-013-2009) High temperature thermoelectrics of the cubic Ir<sub>3</sub>Ge<sub>7</sub> type (Invited)**

H. Kleinke\*, University of Waterloo, Canada

**4:30 PM**

**(PACRIM8-S15-014-2009) Structure and Improved Performance of Bulk Nanostructured Thermoelectric Materials (Invited)**

T. Zhu\*, X. Zhao, Zhejiang University, China

**5:00 PM**

**(PACRIM8-S15-015-2009) Optimizing Electronic Properties of Misfit Layered Compounds [(MSe)<sub>1+x</sub>m[TeSe<sub>2</sub>]<sub>n</sub>] (Invited)**

D. Johnson\*, C. Heideman, Q. Lin, C. Mortensen, University of Oregon, USA

**5:30 PM**

**(PACRIM8-S15-016-2009) Novel inorganic glasses as luminescent concentrators and converters for more efficient TPV energy conversion**

L. Wondraczek\*, M. Peng, University of Erlangen-Nuremberg, Germany

## Symposium 16: Ceramics for Electric Energy Generation, Storage, and Distribution

### Materials for Capacitance Energy Storage

Room: Oxford

Session Chairs: Franziska Scheffler, OvGU Magdeburg; Michitaka Ohtaki, Kyushu University

**1:20 PM**

**(PACRIM8-S16-009-2009) Polymer-Derived Ceramic Foams in Heat Storage Applications (Invited)**

F. A. Scheffler\*, OvGU, Germany; E. Stern, O. Schwappach, ZAE Bayern, Germany

**1:50 PM**

**(PACRIM8-S16-010-2009) Manganese Oxide Electrodes for Electrochemical Supercapacitors (Invited)**

I. Zhitomirsky\*, J. Wei, G. Moses Jacob, J. Li, M. Cheong, McMaster University, Canada

**2:20 PM**

**(PACRIM8-S16-011-2009) Nanostructured Ni-Mn hydroxide and hydroxocarbonate for electrode of supercapacitor**

Y. Oh\*, J. Lee, KIST, Korea, South; O. A. Shlyakhtin, Institute of Chemical Physics, Russia

**2:40 PM**

**(PACRIM8-S16-012-2009) Hydrogen Storage Capacity of New Hybrids Materials formed by Mesostuctured Carbon-Metal or intermetallic nanoparticles**

P. Dibandjo\*, Institut de Chimie des Surfaces et Interfaces (ICSI), CNRS UPR 9069, France; C. Zlotea, R. Campesi, 2Laboratoire de Chimie Métallurgique des Terres Rares, Institut de Chimie et des Matériaux Paris-Est, UMR 7182, France; R. Gadiou, Institut de Chimie des Surfaces et Interfaces (ICSI), CNRS UPR 9069, France; F. Cuevas, M. Latroche, 2Laboratoire de Chimie Métallurgique des Terres Rares, Institut de Chimie et des Matériaux Paris-Est, UMR 7182, France; C. Vix-Guterl, Institut de Chimie des Surfaces et Interfaces (ICSI), CNRS UPR 9069, France

**3:00 PM**

Break

### Materials for Solar-Thermal Applications

Room: Oxford

Session Chairs: Peter Notten, Eindhoven University of Technology; Igor Zhitomirsky, McMaster University

**3:20 PM**

**(PACRIM8-S16-014-2009) The Preparation of Mixed-phase Nanocrystalline TiO<sub>2</sub> Electrode for Dye-Sensitized Solar Cells (Invited)**

C. Su\*, Y. Hsu, H. Chen, National Taipei University of Technology, Taiwan

**3:50 PM****(PACRIM8-S16-015-2009) Preparation of TiO<sub>2</sub> nanotube and its application to dye-sensitized solar cell**

J. Kim\*, T. Sekino, D. Park, S. Tanaka, Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan

**4:10 PM****(PACRIM8-S16-016-2009) Metal-in-ceramic nano-inclusion materials; Synthesis, microstructure and properties**

G. Westin\*, A. Pohl, Uppsala University, Sweden; K. Jansson, Stockholm University, Sweden

**4:30 PM****(PACRIM8-S16-017-2009) Thin Film Coatings for Concentrated Solar Power Collectors**

A. S. Geleil\*, D. Edwards, S. Misture, Alfred University, USA; R. Naum, C. Ritzler, Applied Coatings Group, Inc., USA

**Symposium 19: Glasses and Ceramics for Nuclear and Hazardous Waste Treatment****Glass, Glass-Ceramic and Cementitious Waste Forms**

Room: Plaza C

Session Chair: Aldo Boccaccini, Imperial College London

**1:30 PM****(PACRIM8-S19-007-2009) Phosphate Glasses as Alternative Hosts for Radioactive Wastes (Invited)**

R. Brow\*, Missouri University Science & Technology, USA

**2:00 PM****(PACRIM8-S19-008-2009) Investigation on the sulfate nuclear waste insertion in model phosphate matrix**

R. Bérengère, L. Montagne\*, T. Grégory, M. François, University of Lille, France; G. Agnès, D. Jean-Luc, CEA, France

**2:20 PM****(PACRIM8-S19-009-2009) 'Glass-Ceramic Stoneware' as a Promising Application for Waste Glasses**

E. Bernardo\*, University of Padova, Italy; L. Esposito, E. Rambaldi, A. Tucci, Centro Ceramico di Bologna, Italy

**2:40 PM****(PACRIM8-S19-010-2009) Glass-ceramics from plasma vitrified air pollution control residues from a UK energy from waste facility**

A. Rani Devaraj, A. R. Boccaccini\*, Imperial College London, United Kingdom; D. Deegan, Tetronics Ltd, United Kingdom; C. Cheeseman, Imperial College London, United Kingdom

**3:00 PM****Break****3:20 PM****(PACRIM8-S19-011-2009) Zirconolite Glass-Ceramic, investigation of new composition: crystallization and microstructure evaluation**

M. Mahmoudysepheh\*, V. Marghussian, J. Javadpour, Iran University of Science and Technology, Iran

**3:40 PM****(PACRIM8-S19-012-2009) The Behaviors of Immobilization and stabilization of Heavy metal ions in the Cementitious Materials**

K. You\*, G. Han, N. Um, J. Ahn, Korea institute of Geoscience and Mineral Resource, Korea, South

**4:00 PM****(PACRIM8-S19-013-2009) Development of Waste Forms for Radioactive Iodine**

T. Garino\*, T. Nenoff, J. Krumhansl, N. Ockwig, Sandia National Laboratories, USA

**4:20 PM****(PACRIM8-S19-014-2009) Development of Glass Compositions to Immobilize Alkali, Alkaline Earth, Lanthanide and Transition Metal Fission Products from Nuclear Fuel Reprocessing**

J. Marra\*, A. Youchak-Billings, Savannah River National Laboratory, USA; J. Crum, J. Ryan, J. Vienna, Pacific Northwest National Laboratory, USA

**Symposium 20: Advances in Biomineralized Ceramics, Bioceramics, and Bioinspired Designs****Mineralization, Self-Assembly and Bioinspired Ceramics**

Room: Georgia A

Session Chair: John Skedros, University of Utah

**1:20 PM****(PACRIM8-S20-009-2009) Nacre versus Bone: From Structure to Mechanics (Invited)**

R. Wang\*, University of British Columbia, Canada

**1:50 PM****(PACRIM8-S20-010-2009) Mimicking the Nanostructured Architecture of Bone (Invited)**

T. Thula, S. Jee, L. Gower\*, University of Florida, USA

**2:20 PM****(PACRIM8-S20-011-2009) Calcium phosphate/Biopolymer Nanocomposite Fibrous Scaffolds for Biomedical Engineering**

T. Chae\*, H. Yang, F. Ko, T. Troczynski, University of British Columbia, Canada

**2:40 PM****(PACRIM8-S20-012-2009) Enzyme Grafting to Bioactive Glasses**

E. Verne\*, S. Ferraris, C. Vitale Brovarone, S. Spriano, O. Bretcanu, Politecnico di Torino, Italy; C. Bianchi, Milan University, Italy; M. Morra, C. Cassinelli, NobilBio Ricerche, Italy

**3:00 PM****(PACRIM8-S20-013-2009) From Biosilica Synthesis in Marine Sponges to Bioinspired Materials (Invited)**

B. Schwenzler\*, D. E. Morse, University of California, USA

**3:30 PM****Break****Mechanical Properties and Biomechanics**

Room: Georgia A

Session Chair: Laurie Gower, University of Florida

**4:10 PM****(PACRIM8-S20-014-2009) Microscopic Hypermineralized Interfaces Enhance Toughness in Antler and Bone (Invited)**

J. G. Skedros\*, Utah Bone and Joint Center, USA

**4:40 PM****(PACRIM8-S20-015-2009) Comparative Study of the Structure and Mechanical Properties of Antler and Bone (Invited)**

P. Chen\*, J. M. Curiel, R. M. Kulin, M. E. Laumeay, J. McKittrick, K. S. Vecchio, UC San Diego, USA; R. O. Ritchie, UC Berkeley, USA

**5:10 PM****(PACRIM8-S20-016-2009) A Novel Cracking Mechanism in Bone: Inspiration for the Design of New Materials**

V. Ebacher\*, R. Wang, University of British Columbia, Canada

**5:30 PM****(PACRIM8-S20-017-2009) Contributions of Microscopic Toughening Mechanisms to Macroscopic Toughness in Abalone Nacre**

H. Kakisawa\*, T. Sumitomo, National Institute for Materials Science, Japan; R. Inoue, Tokyo University of Science, Japan; Y. Kagawa, The University of Tokyo, Japan

**Symposium 23: Glass Science****Glass Formation and Relaxation Processes in Glasses**

Room: Grouse

Session Chair: Lothar Wondraczek, University of Erlangen-Nuremberg

**1:20 PM****(PACRIM8-S23-058-2009) Glass Formation and Effects of Temperature on Order/Disorder of Oxide Melt Structures (Invited)**

J. F. Stebbins\*, stanford university, USA

**1:50 PM****(PACRIM8-S23-059-2009) Low entropy glasses from super strong zeolite amorphisation (Invited)**

G. N. Greaves\*, Aberystwyth University, United Kingdom

**2:20 PM****(PACRIM8-S23-060-2009) Structural Evolution in Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub> Liquids and Glasses**

R. Weber\*, Materials Development, Inc., USA; S. Sen, University of California, USA; R. E. Youngman, Corning, Incorporated, USA; R. T. Hart, Shepard Chemical Company, USA; C. J. Benmore, Argonne National Laboratory, USA; M. C. Wilding, Aberystwyth University, United Kingdom

**2:40 PM****(PACRIM8-S23-061-2009) Mechanical relaxation below and at the glass transition**

B. Rufflé\*, S. Ayrinhac, M. Foret, E. Courtens, R. Vacher, Laboratoire des Colloïdes, Verres et Nanomatériaux, France

**3:00 PM****Break****3:20 PM****(PACRIM8-S23-062-2009) Excess of vibrational density of states in densified glasses (Invited)**

B. Champagnon\*, Université Lyon1-CNRS, France; L. Wondraczek, University Erlangen-Nurnberg, Germany

**3:50 PM****(PACRIM8-S23-063-2009) Boson peak, structural homogeneity and relaxation of borosilicate glasses with different thermomechanical histories**

L. Wondraczek\*, University of Erlangen-Nuremberg, Germany; C. Marcenat, CEA, France; B. Champagnon, Université Claude Bernard Lyon 1, France

**4:10 PM****(PACRIM8-S23-064-2009) Molecular tumbling dynamics in supercooled glycerol: Effect of nano-confinement (Invited)**

P. Jain, S. Sen\*, A. Levchenko, A. Navrotsky, P. Yu, UC Davis, USA

**4:40 PM****(PACRIM8-S23-065-2009) Relaxation features of both strong and fragile glass systems (Invited)**

Y. Yue\*, Aalborg University, Denmark

**5:10 PM****(PACRIM8-S23-066-2009) Two Factors Governing Fragility: Stretching Exponent and Configurational Entropy**

J. C. Mauro\*, Corning Incorporated, USA; P. K. Gupta, Ohio State University, USA

**5:30 PM****(PACRIM8-S23-067-2009) Impact of Fragility on Enthalpy Relaxation in Glass**

R. J. Loucks\*, Alfred University, USA; J. C. Mauro, Corning Incorporated, USA

**5:50 PM****(PACRIM8-S23-068-2009) Modeling the Nonequilibrium Viscosity of Glass**

D. C. Allan\*, J. C. Mauro, M. Potuzak, Corning Incorporated, USA; R. J. Loucks, Alfred University, USA

**Non-oxide Glasses II**

Room: Cypress

Session Chairs: S. Sundaram, Pacific Northwest National Laboratory; Steve Martin, Iowa State University of Science and Technology

**1:20 PM****(PACRIM8-S23-036-2009) Recent progress in understanding phase-change memories (Invited)**

A. Kolobov\*, P. Fons, J. Tominaga, AIST, Japan

**1:50 PM****(PACRIM8-S23-041-2009) Radiation Response and Avalanche Gain in Chalcogenide Glasses**

B. R. Johnson\*, J. V. Crum, B. J. Riley, J. V. Ryan, S. K. Sundaram, Pacific Northwest National Lab, USA

**2:10 PM****(PACRIM8-S23-042-2009) Site-specific dynamics of Se atoms in binary Ge-Se glasses: High-resolution and high-temperature <sup>77</sup>Se NMR results**

E. L. Gjersing\*, UC Davis, USA; R. E. Youngman, Corning Inc., USA; S. Sen, UC Davis, USA

**2:30 PM****(PACRIM8-S23-043-2009) Evolution of photoinduced movement of atoms in glass (Invited)**

H. Jain\*, D. Zhao, A. Kovalskiy, Lehigh University, USA

**3:00 PM****Break****3:20 PM****(PACRIM8-S23-044-2009) Mid-IR Tellurite Glass Fibres for Sensors and Light Sources (Invited)**

A. Jha\*, J. Lousteau, X. Jiang, University of Leeds, United Kingdom; H. T. Bookey, H. Li, A. K. Kar, W. N. MacPherson, Heriot-Watt University, United Kingdom; R. Suo, L. Zhang, I. Bennion, Aston University, United Kingdom

**3:50 PM****(PACRIM8-S23-045-2009) Gallium as a Nucleating Agent in Chalco-halide Glasses for Fabricating Transparent Glass Ceramics in the Infrared Range (Invited)**

L. Calvez\*, M. Rozé, Y. Ledemi, H. Ma, B. Bureau, Glass and ceramic laboratory, UMR-CNRS 6226 Sciences Chimiques de Rennes, France; M. Allix, G. Matzen, CNRS, UPR 3079 CEMTHI, France; X. Zhang, C. Lin, Glass and ceramic laboratory, UMR-CNRS 6226 Sciences Chimiques de Rennes, France

**4:20 PM****(PACRIM8-S23-046-2009) Multi-Scale Processing of Non-Oxide Glasses (Invited)**

S. K. Sundaram\*, B. Riley, M. Schweiger, B. Johnson, B. MacIassac, J. Olmstead, Pacific Northwest National Laboratory, USA

**4:50 PM****(PACRIM8-S23-047-2009) Fast Ion Conduction in Glass: Mixed Glass Former and Mixed Anion Effects (Invited)**

S. Martin\*, Iowa State University of Science and Technology, USA

**5:20 PM****(PACRIM8-S23-048-2009) New non-oxide Mg-ion conducting amorphous materials**

S. Martin, E. J. Kuster\*, S. Berbano, Iowa State University of Science and Technology, USA



## Symposium 24: Glass Technology, Energy and Environment

### Part II: The Future of Glass Strength - An Industry Changing Symposium

Room: Stanley

Session Chair: Richard Brow, Missouri University Science & Technology

**1:20 PM**

**(PACRIM8-S24-037-2009) The Elastic Properties of Silicate Glasses (Invited)**

T. Rouxel\*, Univ. Rennes, France

**2:00 PM**

**(PACRIM8-S24-038-2009) Nano-Scale Fatigue and Failure Processes in Glass (Invited)**

M. Ciccotti\*, Univ. Montpellier, France

**2:40 PM**

**(PACRIM8-S24-039-2009) Modeling Glass Failure and the Strength of Oxide Glasses (Invited)**

A. Cormack\*, L. Adkins, Alfred University, USA; A. Pedone, Università di Modena e Reggio Emilia, Italy

**3:20 PM**

Break

**3:40 PM**

Panel Discussion

## Symposium 25: Glasses for Optoelectronic and Optical Applications

### Glass Fibers

Room: Seymour

Session Chair: Shilin Jiang, Advalue Photonics Inc, USA

**1:20 PM**

**(PACRIM8-S25-038-2009) Soft glass microstructured optical fibres: recent progress in fabrication and opportunities for novel optical devices (Invited)**

H. Ebendorff-Heidepriem\*, University of Adelaide, Australia

**1:50 PM**

**(PACRIM8-S25-039-2009) Elaboration and Characterization of Solid Core and Hollow Core Microstructured Chalcogenide Fibers (Invited)**

J. Troles\*, University de Rennes I, France; L. Brilland, PERFOS, France; F. Désévédy, P. Houizot, Q. Coulombier, University de Rennes I, France; F. Smektala, University of Bourgogne, France; T. Chartier, T. Nguyen, ENSSAT, University of Rennes I, France; G. Renversez, University of Aix-Marseille 3, France; J. Adam, University de Rennes I, France

**2:20 PM**

**(PACRIM8-S25-040-2009) Chalcogenide fibers for medical and space**

B. Bureau\*, C. Boussard-Pledel, S. Mauriceon, X. Zhang, University of Rennes, France; P. Lucas, A. Wilhelm, University of Arizona, USA; J. Lucas, University of Rennes, France

**2:40 PM**

**(PACRIM8-S25-041-2009) Optical fiber with second-order optical nonlinearity by laser-induced space-selective crystallization**

Y. Kondo\*, S. Ohara, N. Sugimoto, Asahi Glass Co. Ltd., Japan; H. Masai, Y. Takahashi, N. Iwafuchi, T. Fujiwara, Tohoku University, Japan

**3:00 PM**

Break

**3:20 PM**

**(PACRIM8-S25-042-2009) Bi-doped Glass Optical Fibers: Opportunities and Challenges (Invited)**

E. M. Dianov, I. A. Bufetov\*, Fiber Optics Research Center, Russia

**3:50 PM**

**(PACRIM8-S25-043-2009) Recent Advances in Air/Silica Microstructured Optical Fibers (Invited)**

M. Petrovich\*, F. Poletti, C. Grivas, A. van Brakel, D. J. Richardson, University of Southampton, United Kingdom

## Optical Sensing

Room: Seymour

Session Chair: Giancarlo Righini, CNR

**4:20 PM**

**(PACRIM8-S25-044-2009) Film Adhesion in Thick Chalcogenide Films (Invited)**

H. A. Qiao\*, B. R. Johnson, J. S. McCloy, Pacific Northwest National Laboratory, USA; N. A. Carlie, Clemson University, USA; N. C. Anheier, Pacific Northwest National Laboratory, USA

**4:50 PM**

**(PACRIM8-S25-045-2009) High Q Glass Microspheres for Biological Sensing**

S. Berneschi\*, F. Così, G. Nunzi Conti, S. Pelli, S. Soria, F. Baldini, A. Giannetti, G. C. Righini, Institute of Applied Physics "Nello Carrara", Italy

**5:10 PM**

**(PACRIM8-S25-046-2009) Opals and core-shell systems: a possible route to metamaterials and plasmonics**

C. Armellini, CNR-IFN, Italy; S. Berneschi, CNR-IFAC, Italy; S. Bhaktha, CNR-IFN, Italy; Y. Boucher, ÉNIB, France; B. Boulard, Université du Maine, France; A. Chiappini, A. Chiasera, CNR-IFN, Italy; C. Duverger-Arfuso, Université du Maine, France; P. Féron, ENSSAT, France; M. Ferrari\*, Y. Jestin, CNR-IFN, Italy; L. Minati, FBK, Italy; E. Moser, Università di Trento, Italy; G. Nunzi Conti, Centro Studi e Ricerche E. Fermi, Italy; S. Pelli, CNR-IFAC, Italy; A. Quandt, Universität Greifswald, Germany; D. Rao, University of Hyderabad, India; G. C. Righini, CNR-IFAC, Italy; S. Soria, Centro Studi e Ricerche E. Fermi, Italy; G. Speranza, FBK, Italy

**5:30 PM**

**(PACRIM8-S25-047-2009) Characterizing chalcogenide thin film waveguides at mid-infrared wavelengths**

H. A. Qiao\*, M. C. Phillips, B. E. Bernacki, Pacific Northwest National Lab, USA; N. A. Carlie, Clemson University, USA; N. C. Anheier, Pacific Northwest National Lab, USA

**5:50 PM**

**(PACRIM8-S25-048-2009) Neutron Detector Glasses Containing Gadolinium Oxide**

K. L. Goetschius\*, J. E. Shelby, Alfred University, USA; A. Houston, NRL, USA

## Friday, June 5, 2009

## Symposium 03: Novel, Green, and Strategic Processing and Manufacturing Technologies

### Novel Processing

Room: Plaza B

Session Chairs: Rolf Janssen, TU Hamburg-Harburg; Keizo Uematsu, Nagaoka University of Technology

**8:30 AM**

**(PACRIM8-S03-016-2009) Dry Powder Synthesis of Lead free Actuators in the System (K1-xNax)1-yLiyNb1-zTazO3: An Example of a New High Throughput Approach for Exploring Multifunctional Ceramics (Invited)**

R. Janssen\*, T. Stegk, H. Mgbemere, G. Schneider, TU Hamburg-Harburg, Germany

**9:00 AM**

**(PACRIM8-S03-017-2009) Development of ceramic and metallic cellular structures by freeze foaming**

T. Moritz\*, A. Mueller, Fraunhofer IKTS, Germany

**9:20 AM**

**(PACRIM8-S03-018-2009) Patterning of closed pores utilizing the superplastically foaming method**

A. Kishimoto\*, Y. Nishino, H. Hayashi, Okayama University, Japan

**9:40 AM**

**Break**

**10:00 AM**

**(PACRIM8-S03-019-2009) Grinding Behavior of Abnormally Large Particles in Alumina Powder (Invited)**

E. Yaegaki, T. Kimura, K. Takahashi, Y. Takahashi, T. Yokozawa, S. Tanaka, K. Uematsu\*, Nagaoka University of Technology, Japan

**10:30 AM**

**(PACRIM8-S03-020-2009) Effect of beads milling of Si on the synthesis of Si<sub>3</sub>N<sub>4</sub> powders by direct nitridation process**

T. Kunishima\*, J. Tatami, T. Wakihara, K. Komeya, T. Meguro, Yokohama National University, Japan

**10:50 AM**

**(PACRIM8-S03-021-2009) High Thermal Conductivity Silicon Nitride Prepared by a Reaction-Bonding and Post-Sintering Method**

Y. Zhou\*, Y. Yoshizawa, K. Hirao, National Institute of Advanced Industrial Science and Technology (AIST), Japan

**11:10 AM**

**(PACRIM8-S03-022-2009) Fabrication of Carbon Nanotubes Dispersed Al<sub>2</sub>O<sub>3</sub> Composites by Aligned Control**

B. Jang\*, Y. Sakka, National Institute for Materials Science, Japan; S. Woo, Korea Institute of Energy Research, Korea, South

**11:30 AM**

**(PACRIM8-S03-023-2009) Characteristics of Pangasinan Zeolite Clay as a Material for Molecular Sieve for Bioethanol**

S. S. Franco\*, R. R. Vistudazo, C. D. Galut, Mariano Marcos State University, Philippines

## **Symposium 06: Synthesis and Processing of Materials by the Spark Plasma Method**

### **Properties of SPS Densified Materials**

Room: Prince of Wales

Session Chairs: Mats Nygren, Stockholm University; Yasuhiro Kodera, Ryukoku Univ.

**8:30 AM**

**(PACRIM8-S06-019-2009) Spark Plasma Sintering on thermoelectric materials (Invited)**

Y. Grin\*, Max-Planck-Institut fuer Chemische Physik fester Stoffe, Germany

**9:00 AM**

**(PACRIM8-S06-020-2009) Consolidation of carbon with the amorphous-graphite transformation by SPS**

M. Ohyanagi\*, N. Toyofuku, M. Nishimoto, Y. Kodera, Ryukoku University, Japan; Z. Munir, University of California, Davis, USA

**9:20 AM**

**(PACRIM8-S06-021-2009) Thermal and Mechanical Evaluation Hafnium-Based Ultra High Temperature Ceramics Fabricated by Hot Pressing and Field Assisted Sintering**

M. Gasch\*, NASA Ames Research Center, USA; M. Stackpoole, M. Gusman, ELORET, USA; S. Johnson, NASA Ames Research Center, USA

**9:40 AM**

**Break**

**10:00 AM**

**(PACRIM8-S06-022-2009) Spark Plasma Sintering of Nano-Bioceramics and Composites (Invited)**

M. K. Khor\*, Nanyang Technological University, Singapore

**10:30 AM**

**(PACRIM8-S06-023-2009) Introduction of High-Throughput, Commercial Application, Spark Plasma Sintering (SPS) Technology**

R. Aalund\*, Thermal Technology LLC, USA

**10:50 AM**

**(PACRIM8-S06-024-2009) Consolidation of BN and SiC/BN composite by Mechanical Alloying - Spark Plasma Sintering (Invited)**

Y. Kodera\*, M. Ohyanagi, Ryukoku Univ., Japan

**11:20 AM**

**(PACRIM8-S06-025-2009) Conditioning of iodine in an apatite-like ceramic by reactive spark plasma sintering**

E. Courtois\*, L. Campayo, A. Ledieu, CEA Marcoule, France; S. Le Gallet, F. Bernard, Institut Carnot de Bourgogne, France; Y. Grin, Max Planck Institut fur chemische physik fester stoffe, Germany

## **Symposium 10: Geopolymers - Low Energy and Environmentally Friendly Ceramics**

### **Geopolymer II**

Room: Regency E

Session Chairs: Ken MacKenzie; Trudy Kriven, University of Illinois at Urbana-Champaign

**8:30 AM**

**(PACRIM8-S10-010-2009) On the Great Pyramids of Egypt and Sustainable Building Materials (Invited)**

S. Miller, E. Jud, A. Moseson, A. Sakulich, M. W. Barsoum\*, Drexel University, USA

**9:00 AM**

**(PACRIM8-S10-011-2009) The Mystery of the Great Pyramids of Egypt: A Partial Solution**

M. W. Barsoum\*, A. Sakulich, E. Jud, S. Miller, A. Moseson, Drexel University, USA

**9:20 AM**

**(PACRIM8-S10-012-2009) Evaluation of the effectiveness of amorphous composition for fly ash geopolymer mix design**

R. P. Williams\*, A. van Riessen, Curtin University of Technology, Australia

**9:40 AM**

**Break**

**10:00 AM**

**(PACRIM8-S10-013-2009) Geopolymers- Low Energy and Environmentally Friendly Ceramics (Invited)**

A. van Riessen\*, J. Temuujin, Curtin University of Technology, Australia

**10:30 AM**

**(PACRIM8-S10-014-2009) Development of geopolymers from plasma vitrified air pollution control (APC) residues**

I. Kourti, C. R. Cheeseman, A. R. Boccaccini\*, Imperial College London, United Kingdom

**10:50 AM**

**(PACRIM8-S10-015-2009) Geopolymers for the Immobilisation of Incinerator Fly Ash**

C. Leonelli\*, L. Barbieri, A. Corradi, E. Kamseu, I. Lancellotti, University of Modena and Reggio Emilia, Italy

**11:10 AM**

**Discussion Period**

## Symposium 11: Advances in Electroceramics

### Multi-ferroic Materials & Applications / Lead-based Piezoelectrics

Room: Regency A

**8:30 AM**

**(PACRIM8-S11-050-2009) Relaxor-Like Behaviors in Double Perovskite Ceramics (Invited)**

X. Chen\*, Y. Lin, Zhejiang University, China

**9:00 AM**

**(PACRIM8-S11-051-2009) Structural and Multiferroic Properties of the (1-x)BiFeO<sub>3</sub>-xDyFeO<sub>3</sub> Solid Solution**

W. Zhu\*, B. Su, Z. Ye, Simon Fraser University, Canada

**9:20 AM**

**(PACRIM8-S11-052-2009) Effects of Dy substitution on structure and ferroelectric properties of BiFeO<sub>3</sub> thin films**

K. Cho\*, C. Kang, KIST, Korea, South; Y. Lee, Hanyang Univ., Korea, South; S. Yoon, KIST, Korea, South

**9:40 AM**

**Break**

**10:00 AM**

**(PACRIM8-S11-053-2009) Multiferroic Epitaxial Thin Films and Heterostructures (Invited)**

A. Pignolet\*, R. Nechache, O. Gaurteau, C. Harnagea, Institut National de la Recherche Scientifique (INRS) / Université du Québec, Canada

**10:30 AM**

**(PACRIM8-S11-054-2009) Nanostructured Ceramics of Perovskite Morphotropic Phase Boundary Materials (Invited)**

M. Algueró\*, H. Amorín, T. Hungria, J. Ricote, R. Jiménez, A. Castro, Instituto de Ciencia de Materiales de Madrid, CSIC, Spain; P. Ramos, Universidad de Alcalá, Spain; J. Galy, Centre Elaboration Matériaux et Etudes Structurales (CEMES), CNRS, France; J. Holc, M. Kosec, Institute Jozef Stefan, Slovenia

**11:00 AM**

**(PACRIM8-S11-055-2009) Electromechanical Properties of PMN-PZ-PT Textured Ceramics formed by Templated Grain Growth using PbTiO<sub>3</sub> template particles**

S. F. Poterala\*, R. J. Meyer, G. L. Messing, Pennsylvania State University, USA

**11:20 AM**

**(PACRIM8-S11-056-2009) Field-Induced Strain Near the Curie Temperature for PZT Ceramics**

P. Yang\*, C. B. DiAntonio, G. R. Burns, M. R. Winter, M. R. Sanchez, T. P. Chavez, Sandia National Laboratories, USA

**11:40 AM**

**(PACRIM8-S11-057-2009) Giant Electrocaloric Effect in Ceramic Relaxor Ferroelectrics (Invited)**

Z. Kutnjak\*, Jozef Stefan Institute, Slovenia

### Tunable Materials & Devices

Room: Regency C

Session Chairs: Yong Cho, Yonsei University; Hitoshi Ohsato, Nagoya Institute of Technology

**8:30 AM**

**(PACRIM8-S11-058-2009) Tunable Behavior in the Na<sub>0.5</sub>Bi<sub>0.5</sub>TiO<sub>3</sub>-SrTiO<sub>3</sub> System (Invited)**

D. Suvorov\*, M. Spreitzer, J. Kónig, Jozef Stefan Institute, Slovenia

**9:00 AM**

**(PACRIM8-S11-059-2009) La<sub>2</sub>O<sub>3</sub>-ZnO-B<sub>2</sub>O<sub>3</sub> Glass-based Dielectrics**

S. Doo\*, Y. Jo, Y. Cho, Yonsei university, Korea, South

**9:20 AM**

**(PACRIM8-S11-060-2009) Dielectric Dispersion and Mechanism of Diffuse Phase transition in BST Ceramics**

T. Tsurumi\*, T. Teranishi, T. Hoshina, H. Takeda, Tokyo Institute of Technology, Japan

**9:40 AM**

**Break**

**10:00 AM**

**(PACRIM8-S11-061-2009) Development of (100) Three-axis-oriented Single Crystal (Ba<sub>0.7</sub>Sr<sub>0.3</sub>)TiO<sub>3</sub> Thin Film fabricated on Pt/MgO(100) Substrate by Chemical Solution Deposition Method**

T. Hosokura\*, K. Kageyama, H. Takagi, Y. Sakabe, Murata manufacturing Co., Ltd., Japan

**10:20 AM**

**(PACRIM8-S11-062-2009) Electronic Properties of Perovskite Containing Glass Ceramics: From DC to GHz**

M. Letz\*, SCHOTT AG, Germany

**10:40 AM**

**(PACRIM8-S11-063-2009) Effect of Interfaces on Tunability in Barium Strontium Titanate Thin-film Capacitor**

N. Horiuchi\*, T. Hoshina, H. Takeda, T. Tsurumi, Tokyo Inst. Tech., Japan

**11:00 AM**

**(PACRIM8-S11-064-2009) Dielectric Tunable Characteristics of Ba(Zr,Ti)O<sub>3</sub> Ferroelectric Ceramics**

J. Zhai\*, Functional Materials Research Laboratory, China

**11:20 AM**

**(PACRIM8-S11-065-2009) Tunable Barium Strontium Titanate Thin Films by CSD**

H. Suzuki\*, N. Wakiya, D. Iwasaki, N. Sakamoto, Shizuoka University, Japan

## Symposium 14: Solid Oxide Fuel Cells and Hydrogen Technology

### Sealing Materials, Compatibility and Designs

Room: Georgia B

Session Chair: Nigel Sammes, Colorado School of Mines

**8:30 AM**

**(PACRIM8-S14-038-2009) The Search for a Glass Sealant for Solid Oxide Electrolyser Cells**

A. J. Connelly\*, H. Nonnet, A. Ledieu, CEA - Marcoule, France; A. Favier Rouhaud, Université Montpellier II, France

**8:50 AM**

**(PACRIM8-S14-006-2009) Novel Cathode Materials used in Intermediate Solid Oxide Fuel Cells**

N. M. Sammes\*, Colorado School of Mines, USA; A. Smirnova, A. Lassman, University of Connecticut, USA

**9:10 AM**

**(PACRIM8-S14-040-2009) Thermochemical Stability Evaluation of a Solid Oxide Cell Glass**

K. Lu\*, T. Jin, Virginia Polytechnic Institute and State University, USA

**9:30 AM**

**Break**

**9:50 AM**

**(PACRIM8-S14-041-2009) Self-healing SOFC Sealing Glass**

C. Daniel, L. Montagne\*, M. François, T. Grégory, University of Lille, France

**10:10 AM**

**(PACRIM8-S14-043-2009) Development of barium-free glass-ceramic seal for p-SOFC joining with AISI 430 stainless steel**

A. Theerapapvisetpong\*, S. Jiamsirilers, Chulalongkorn University, Thailand; P. Thavorniti, National Metal and Material Technology Center, Thailand

**10:30 AM****(PACRIM8-S14-044-2009) Ceramic Fillers Added BaO-Al<sub>2</sub>O<sub>3</sub>-SiO<sub>2</sub>-B<sub>2</sub>O<sub>3</sub> Glasses for SOFC Sealant Applications**

S. Wang\*, Y. Wang, Y. Hsu, C. Chuang, National Taipei University of Technology, Taiwan

**10:50 AM****(PACRIM8-S14-045-2009) Reactivity of Sodium Aluminosilicate Glass with Stainless Steel**

N. Lonnroth\*, K. A. Nielsen, M. Huizinga, Z. Wu, Risø DTU National Laboratory for Sustainable Energy, Denmark

**11:10 AM****(PACRIM8-S14-046-2009) Compatibility of Interconnect/Glass Seal at Different Atmosphere for Solid Oxide Cell Application**

K. Lu\*, M. Mahapatra, Virginia Polytechnic Institute and State University, USA

**Symposium 15: Direct Thermal to Electrical Energy Conversion Materials and Applications****Oxide Thermoelectrics**

Room: Regency B

Session Chair: David Johnson, University of Oregon

**8:30 AM****(PACRIM8-S15-017-2009) Strategies for Increasing the Power Factor in Thermoelectric Materials (Invited)**

Q. Li\*, Brookhaven National Lab, USA

**9:00 AM****(PACRIM8-S15-018-2009) Thermoelectric properties of rhodium oxides (Invited)**

I. Terasaki\*, S. Shibusaki, Waseda University, Japan

**9:30 AM****(PACRIM8-S15-019-2009) Phase Equilibria and Structure/Thermoelectric Properties of Compounds in the Ca-Sr-Co-O System**

W. Wong-Ng\*, G. Liu, E. L. Thomas, M. Otani, Q. Huang, N. D. Lowhorn, NIST, USA; J. A. Kaduk, INEOS Technologies, USA

**9:50 AM****(PACRIM8-S15-020-2009) A New Type of Thermoelectrical Materials: Chalcopyrite-Like Chalcogenides A<sub>2</sub>BB'Q<sub>4</sub> (Invited)**

M. Liu, F. Huang\*, L. Chen, Shanghai Institute of Ceramics, China

**Symposium 16: Ceramics for Electric Energy Generation, Storage, and Distribution****Technologies and Industrial Applications of Advanced Ceramics and Composites**

Room: Oxford

Session Chairs: Chaochin Su, National Taipei University of Technology; Kuang-Hsi Wu, Florida International University

**8:30 AM****(PACRIM8-S16-018-2009) Carbon Nanotube (CNT) – Ceramic Composites Manufactured by Direct In-Situ Growth of Nanotubes (Invited)**

A. Datye, K. Wu\*, Florida International University, USA; H. Lin, Oak Ridge National Laboratory, USA; J. Vleugels, K. Vanmeensel, Katholieke Universiteit Leuven, Belgium; D. Hunn, Lockheed Martin, USA; J. Schmidt, Fraunhofer Institut Fertigungstechnik Materialforschung, Germany; W. Li, L. Kumari, S. Kulkarni, G. Gomes, K. Hernandez, Florida International University, USA

**9:00 AM****(PACRIM8-S16-019-2009) Structure Control and Thermal Properties of the Titania Nanotube and Metal Particle Systems by Sonochemical Processing**

T. Nakayama\*, M. Terauchi, S. Suzuki, Nagaoka University of Technology, Japan; T. Sekino, Tohoku University, Japan; H. Suematsu, T. Suzuki, K. Niihara, Nagaoka University of Technology, Japan

**9:20 AM****(PACRIM8-S16-020-2009) Synthesis of Titanium Oxide Nanotube and its Energy-related Application**

T. Sekino\*, D. Park, J. Kim, IMRAM, Tohoku Univ., Japan; N. F. Fahim, ISIR, Osaka Univ., Japan; S. Tanaka, IMRAM, Tohoku Univ., Japan; T. Kusunose, ISIR, Osaka Univ., Japan

**9:40 AM****Break****10:00 AM****(PACRIM8-S16-021-2009) Environmental Impact Evaluation of Ceramics Using Exergy Analysis (Invited)**

H. Kita\*, H. Hyuga, N. Kondo, National Institute of Advanced Industrial Science and Technology (AIST), Japan

**10:30 AM****(PACRIM8-S16-022-2009) Dielectric Properties and Impedance Spectroscopy of Nd<sup>3+</sup> doped Ba<sub>0.3</sub>Sr<sub>0.7</sub>TiO<sub>3</sub> Ceramics Prepared by Reduce – Re-oxidation Process**

Z. Wu, Z. Yao, M. Cao, Z. Yu, H. Huang, H. Hao, H. Liu\*, Wuhan University of Technology, China

**Symposium 20: Advances in Biomineralized Ceramics, Bioceramics, and Bioinspired Designs****New Materials and Composites**

Room: Georgia A

Session Chair: Susmita Bose, Washington State University

**8:30 AM****(PACRIM8-S20-018-2009) Ceramic Composites based on Double Phosphates**

S. Korneychuk\*, T. V. Safronova, V. I. Putlayev, Moscow State University, Russia; K. V. Anton, I.M. Sechenov Medical Academy of Moscow, Russia; A. G. Veresov, Moscow State University, Russia

**8:50 AM****(PACRIM8-S20-019-2009) Ferrimagnetic Glass-Ceramics for Magnetic Induction Hyperthermia**

O. Bretcanu\*, E. Vernè, Politecnico di Torino, Italy

**9:10 AM****Break****Orthopedic Implants, Bone Cements, Bone Scaffolding**

Room: Georgia A

Session Chair: Roger Luyten, VITO

**10:20 AM****(PACRIM8-S20-021-2009) Electrolytic Collagen/CaP Composite Deposition on Post Bio-ceramics Coated Ti6Al4V Implant Alloy**

Y. ShiohKang\*, Y. ChiChum, H. ChiangYu, L. ChienChung, National Chung Hsing University, Taiwan

**10:40 AM****(PACRIM8-S20-022-2009) Comparison of Enhancement of Bone Ingrowth into Hydroxyapatite Ceramics with Highly and Lowly Interconnected Pores by Electrical Polarization**

W. Wang\*, K. Yamashita, Tokyo Medical and Dental University, Japan; S. Itoh, International University of Health and Welfare, Japan

**11:00 AM**

**(PACRIM8-S20-023-2009) Compositionally Gradient Calcium Phosphate Coating on Ti Using Laser and Induction Plasma Spray**  
S. Bose\*, M. Roy, A. Bandyopadhyay, Washington State University, USA

**11:20 AM**

**(PACRIM8-S20-024-2009) Biomimetic Apatite Deposition on Porous Titanium for Biomedical Applications**  
N. Hrabec\*, P. Khoo, R. Bordia, University of Washington, USA

## Porous Ceramics, Resorbable Bioceramics and Degradation

Room: Georgia A

Session Chair: Joanna McKittrick, UC San Diego

**11:40 AM**

**(PACRIM8-S20-025-2009) Porous scaffolds for enhanced bone regeneration**  
J. Luyten\*, S. Mullens, VITO, Belgium

**12:00 PM**

**(PACRIM8-S20-026-2009) Preparation and Characterization of Porous Hydroxyapatite Microspheres for Gentamicin Carrier**  
Y. ShiohKang\*, N. Pai, H. Tsai, National Chung Hsing University, Taiwan

**12:20 PM**

**(PACRIM8-S20-027-2009) Resorbable tricalcium phosphate (TCP) in bone tissue engineering**  
S. Bose\*, Washington State University, USA

## Symposium 23: Glass Science

### Glass in Canada

Room: Cypress

Session Chair: Josef Zwanziger, Dalhousie University, Canada

**8:30 AM**

**(PACRIM8-S23-069-2009) The  $(B_2O_3)_{1-x}(H_2O)_x$  system: from a random network of covalent bonds to a random network of hydrogen bonds (Invited)**

R. Brünig\*, J. B. Galbraith, K. E. Braedley, Mount Allison University, Canada; S. Balaji, Y. Djaoued, Université de Moncton, Canada

**8:50 AM**

**(PACRIM8-S23-070-2009) The Structure of Glasses along the  $SiO_2$ - $GeO_2$  join (Invited)**

G. Henderson\*, University of Toronto, Canada; D. R. Neuville, B. Cochain, IPGP-CNRS, 4 place Jussieu, 75005, France; L. Cormier, IMPMC, Universités Paris 6 et Université Paris 7, CNRS, 75015, France

**9:20 AM**

**(PACRIM8-S23-071-2009) Structure and Structure-Property Studies of Inorganic Oxide Glasses (Invited)**

J. Zwanziger\*, Dalhousie University, Canada

**9:40 AM**

Break

**10:00 AM**

**(PACRIM8-S23-072-2009) Exploring the "Germanate Anomaly" with Germanium-73 NMR (Invited)**

S. Kroeker\*, V. K. Michaelis, University of Manitoba, Canada

**10:30 AM**

**(PACRIM8-S23-073-2009) Relaxations in the glassy state, vibrational and configurational specific heats and use of glassy state of pharmaceuticals (Invited)**

G. P. Johari\*, McMaster University, Canada

**11:00 AM**

**(PACRIM8-S23-074-2009) Structural and dynamical heterogeneity in glass-forming liquids (Invited)**

M. Razul, G. S. Matharoo, St. Francis Xavier University, Canada; I. Saika-Voivod, Memorial University of Newfoundland, Canada; R. K. Bowles, University of Saskatchewan, Canada; P. Poole\*, St. Francis Xavier University, Canada

**11:30 AM**

**(PACRIM8-S23-075-2009) The Packing Landscape for Confined Hard Discs (Invited)**

R. K. Bowles\*, S. S. Ashwin, University of Saskatchewan, Canada

## Theory and Modeling

Room: Grouse

Session Chairs: John Mauro, Corning Incorporated; Ulrich Fotheringham, Schott, Germany

**8:30 AM**

**(PACRIM8-S23-076-2009) Anomalous Glasses and their Tendency Towards Irreversible Densification (Invited)**

L. Huang, Rensselaer Polytechnic Institute, USA; J. Kieffer\*, University of Michigan, USA

**9:00 AM**

**(PACRIM8-S23-077-2009) Forbidden Glasses and the Failure of Fictive Temperature**

R. J. Loucks\*, Alfred University, USA; J. C. Mauro, Corning Incorporated, USA

**9:20 AM**

**(PACRIM8-S23-078-2009) Modeling of the aqueous dissolution behavior of zinc and iron phosphate glasses**

M. L. Schmitt\*, R. K. Brow, Missouri S&T, USA

**9:40 AM**

Break

**10:00 AM**

**(PACRIM8-S23-079-2009) A Few Numerical Approaches for Preparing Atomistic Models of Glasses (Invited)**

N. Mousseau\*, University of Montreal, Canada

**10:30 AM**

**(PACRIM8-S23-080-2009) Topology of the Energy Landscape and Low-frequency Vibrational Anomalies: Effects upon the Glass Transition (Invited)**

G. Naumis\*, Instituto de Fisica, UNAM, Mexico

**11:00 AM**

**(PACRIM8-S23-081-2009) Exploring the multi-dimensional compositional space of oxide systems with respect to glass formation ability (Invited)**

R. Conradt\*, RWTH Aachen University, Germany

**11:30 AM**

**(PACRIM8-S23-082-2009) Theoretical analysis of the relative change of glass stability parameters with the application on some oxide and chalcogenide glasses from the system  $Bix(As_2S_3)_{100-x}$**

A. F. Kozmidis-Petrovic\*, Faculty of Technical Sciences, Serbia; S. R. Lukic, M. Siljegovic, Faculty of Sciences, Serbia

**11:50 AM**

**(PACRIM8-S23-083-2009) Structure and Properties of Low Silica Yttrium Aluminosilicate Glasses: a Molecular Dynamics Simulation Study**

J. Du\*, University of North Texas, USA

## Symposium 24: Glass Technology, Energy and Environment

### Strength, Durability and Electrical Properties of Glasses

Room: Stanley

Session Chair: Jean-Pierre Guin, LARMAUR EA 410

**8:30 AM**

**(PACRIM8-S24-040-2009) High-Strength, Large Case-Depth Chemically Strengthened Glass (Invited)**

A. Varshneya\*, I. M. Spinelli, NYS College of Ceramics, USA

**9:00 AM**

**(PACRIM8-S24-041-2009) Aqueous corrosion of the GeSe4 chalcogenide glass: surface properties and corrosion mechanism**

Y. Niu, J. Guin\*, T. Rouxel, LARMAUR EA 410 Université de Rennes 1, France; A. Abdelouas, Subatech UMR 6457 IN2P3/CNRS, Ecole des mines de Nantes, France; J. Troles, Sciences chimiques de Rennes UMR 6226 CNRS-Université de Rennes UMR 6226 CNRS-Université de Rennes 1, France; F. Smektala, Institut Carnot de Bourgogne, UMR-CNRS 5209 - Université de Bourgogne, France

**9:20 AM**

**(PACRIM8-S24-042-2009) Vitrification of Woody Bio-fuel Ashes**

B. Jonson\*, School of Technology and Design, Sweden

**9:40 AM**

Break

**10:00 AM**

**(PACRIM8-S24-043-2009) Foggy Generation on Glass Plates of High Resolution Scanner Machines**

T. Jitwatcharakomol\*, Physics and engineering Program, Thailand; S. Jiemsirilers, Research Unit of Advanced ceramics, Thailand

**10:20 AM**

**(PACRIM8-S24-045-2009) Dielectric Properties of LCD Glass for High Energy Density Storage Capacitors**

N. J. Smith\*, M. T. Lanagan, C. G. Pantano, Pennsylvania State University, USA

**10:40 AM**

**(PACRIM8-S24-046-2009) Effect of Two Transition Metal Ions, V and Fe, on the Electrical Properties of Li Borate Glasses**

B. Dutta\*, S. Annamalai, R. P. Bhatta, I. L. Pegg, The Catholic University of America, USA

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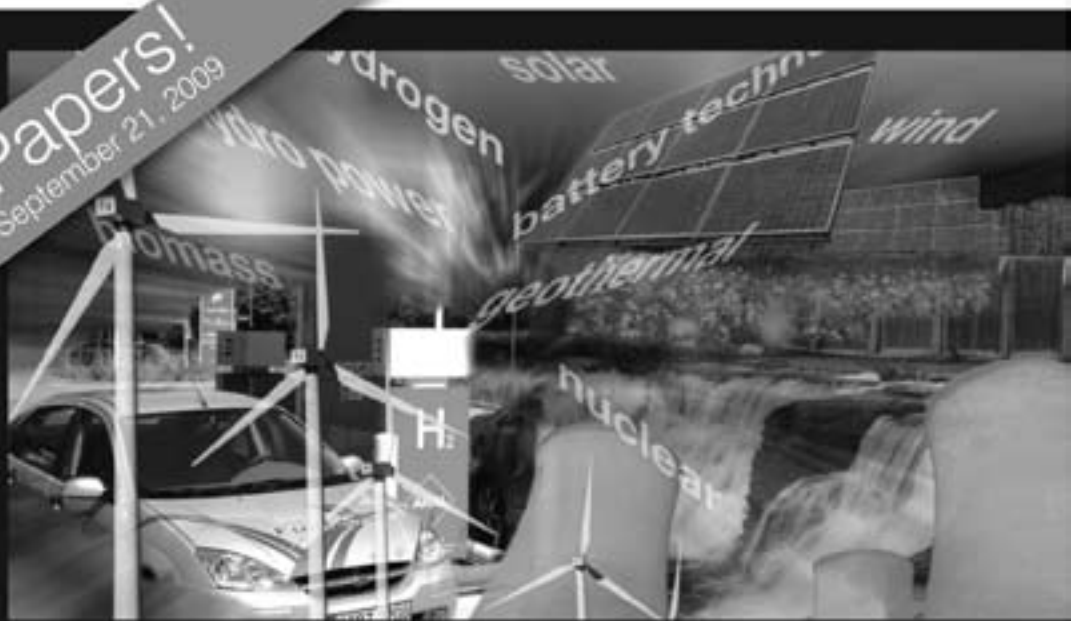


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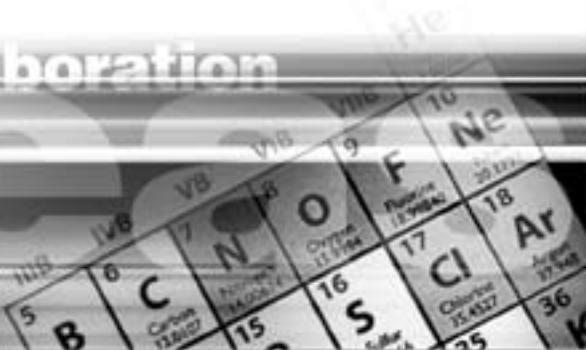
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Daytona Beach, Florida, USA

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Hilton Cocoa Beach Oceanfront  
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Corning, New York, USA

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# An Introduction to Northwestern Polytechnical University

Northwestern Polytechnical University (NPU) is China's only research-oriented, multi-disciplinary, and international university of science and technology, which simultaneously excels at Aeronautics, Astronautics, and Marine Engineering. The University emphasizes science and technology, while harmoniously developing the fields of manage-

NPU's campus covers an area of 5,100 mu (about 340 hectares), offers 54 undergraduate programs, 101 graduate programs, 57 doctoral programs, and is home to 12 postdoctoral research stations. It also has the authority to confer MBA and Master of Engineering Degrees.

Currently, NPU has 3,500 full and associate professors and senior engineers, among whom there are 15 academicians of the Chinese Academy of Engineering and Chinese Academy of Science, 4 foreign academicians, 13 Yangtze River Scholars and 380 Ph.D. advisors.

Since its founding, NPU has trained more than 140,000 students, including 3,000 Ph.D.'s and 15,000 Master's degree holders. Among them are the country's first Ph.D. students in six different disciplines, and the first test pilots with Master's Degrees. 34 Ph.D. students and teachers of the University have become research fellows of Alexander Humboldt, and six NPU graduates are the recipients of the Chinese Ten Outstanding Youths title.

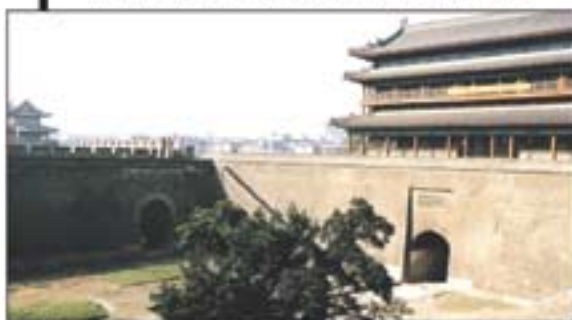
NPU has become an important center for scientific innovation. It has 10 key state disciplines, 13 first-class disciplines with the authority of conferring doctoral degrees, 10 key national laboratories, and national specialized laboratories, 26 key provincial and ministerial laboratories, and 9 provincial engineering research centers. Scientific research is one of the great strengths of NPU. The main indexes of its research are among the top Chinese universities.

NPU has successfully undertaken more than 5,780 national research projects during the "Tenth Five-year Plan" (2001-2005). More than 300 national, provincial and ministerial awards have been granted to the University for its excellent research



Terracotta warriors and horses

achievements, of which 10 are State Awards for Science and Technology Accomplishments. In 2004, the project, "Processing of Continuous Fiber Reinforced Silicon Carbide Matrix Composites for High-Temperature and Long-Time Applications," achieved the



City wall

ment, humanities, economics, and law.

The predecessors of Northwestern Polytechnical University were the State Northwestern Engineering College (formed in 1938 from the unification of Beiyang Engineering College, the Engineering College of Peking University, the Engineering College of Northeast University and Jiaozuo Engineering College), and Huadong Aeronautical College (formed in 1952 from the unification of the Aeronautical Engineering Department of Jiaotong University, the Aeronautical Engineering Department of Nanjing University, and the Aeronautical Engineering Department of Zhejiang University). The State Northwestern Engineering College and Huadong Aeronautical College joined to form Northwestern Polytechnical University in 1957. In 1970 the Engineering Department of Harbin Engineering College was merged into Northwestern Polytechnical University.

NPU was one of the key national constructions of "Project 985" during the "Tenth Five-year Plan" (2001-2005). It was also one of the first Chinese universities to establish graduate schools and university science parks.



Big Wild Goose pagoda



NPU library

first-class State Technology Invention Award. The University's research fund has ranked in the top 10 in size among funds in Chinese universities for the past six years. In 2007, the research fund was up to 1197 million RMB, which ranked fifth in China.



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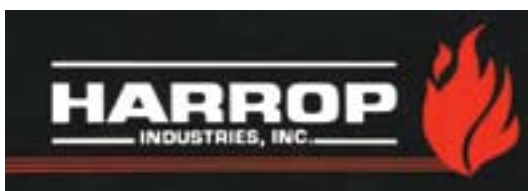
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