Session Program Timetable

Thursday, September 7, 2006
8:30
  { Session A
12:00
Venue: B1F Florence

Joining Technology for New Metallic Glasses and Inorganic Materials

Session Chair (A1-4): K.Nogi, Joining and Welding Research Institute, Osaka University Japan
8:30  A-1 Recent Progress in Bulk Glassy Alloys Fabricated by Use of Subnanoscale Ordered Atomic Configurations (Invited)
  
  9:00  A. Inoue
        Institute for Materials Research, Tohoku University, Japan

  9:00  A-2 The Structure of the Welded Zone and Phase Transformation Behavior of Ni-based Bulk-glass Forming Alloy

        *Institute for Materials Research, Tohoku University, Japan
        **Joining and Welding Research Institute, Osaka University, Japan

  9:15  A-3 Ultrasonic Properties of Glassy Alloys in Views of Complex Wave Elasticity

      M. Fukuhara and A. Inoue
      Institute for Materials Research, Tohoku University, Japan

  9:30  A-4 Origin of Extraordinary Plasticity of Ductile Bulk Metallic Glasses (Invited)

      M. Chen
      10:00
      International Frontier Center for Advanced Materials, Institute for Materials Research, Tohoku University, Japan

Session Chair (A5-8): M. Yoshimura, Tokyo Institute of Technology, Japan
10:15  A-5 Robust Joining and Integration Technologies for Aerospace and Space Exploration Systems (Invited)

      10:45  M. Singh
              Ohio Aerospace Institute, NASA Glenn Research Center, USA

10:45  A-6 Formation, Structure and Electronic Properties of Oxide / Metal / Organic Heterointerfaces (Invited)

      11:15  T. Kamiya and H. Hosono
              Tokyo Institute of Technology, Japan

11:15  A-7 High Quality Welding with 10 kW High Power Fiber Laser

      11:30  Y. Kawahito, K. Kinoshita, M. Mizutani and S. Katayama
              Joining and Welding Research Institute, Osaka University, Japan

11:30  A-8 Inorganic-Organic-Hybrid Coating-Films from Methyltriethoxysilane (Invited)

      12:00  Y. Tanabe*, **, Y. Hoshikawa**, T. Onoki** and E. Yasuda**
              * Chemical Engineering, Graduate School, Nagoya University, Japan
              ** Materials and Structures Laboratory, Tokyo Institute of Technology, Japan
Thursday, September 7, 2006

13:30  
| Session A |

17:00  

Venue: B1F Florence

Joining Technology for New Metallic Glasses and Inorganic Materials

Session Chair (A9-13): M. Fukuhara, Tohoku University, Japan

13:30  A-9  **Nucleation and Growth of New Phases at Interfaces** (Invited)  
|  
|  
| A. L. Greer |

14:00  A-10  **Kinetics of High Temperature Liquid Spreading** (Invited)  
|  
|  
| A. P. Tomsia and E. Saiz |

14:30  A-11  **Development of Variable Temperature UHV-Laser Microscope Combined with Pulsed Laser Deposition for In Situ Studies on Ceramic/Metallic Glass Interfaces**  
|  
|  
| Y. Matsumoto, T. Obata and M. Katayama |

14:45  A-12  **Stress Analysis of Geometrically Complex and Ultra Large Scale Model by Fractal Multi—Grid Method**  
|  
|  

*Joining and Welding Research Institute, Osaka University, Japan  
**Graduate School of Engineering, Osaka University, Japan

15:00  A-13  **Biocompatible Ceramic Coating on Ti and Ti-Alloy by Soft Solution Processing**  
|  
|  
| M. Yoshimura, N. Matsushita and T. Watanabe |

15:15  

Tokyo Institute of Technology, Japan

Session Chair (A14-16): K. Nakata, Joining and Welding Research Institute, Osaka University Japan

15:30  A-14  **Influence of Grain-Grain Interfaces on Heat Transfer in Dense and Porous Oxide Ceramics** (Invited)  
|  
|  
| D.S. Smith, C. Poulier, B. Naït-Ali, A. Michot and J. Absi |

Groupe d’Etude des Matériaux Hétérogènes, Ecole Nationale Supérieure de Céramique Industrielle, France

16:00  A-15  **Interface Effects on Structural Stability of Nanocrystals** (Invited)  
|  
|  
| J.Z. Jiang |

16:30  A-16  **Microstructure Evolution during Sintering of CuO Doped 3Y-TZP Nano-Powder Composites** (Invited)  
|  
|  
| L. Winnubst, S. Ran and D. H.A. Blank |

Inorganic Materials Science, MESA+ Research Institute for Nanotechnology, University of Twente, Netherlands
Thursday, September 7, 2006
8:30  Session B
12:00
Venue: 2F Japanese Style Hall

Nano-particles and Powders

Session Chair (B1-4): M. Naito, Joining and Welding Research Institute, Osaka University, Japan
8:30  B-1  Sintering of Transparent YAG Ceramics for Lasers  (Invited)
9:00  B-2  Fabrication of Textured Alumina-Mullite-Silicon Carbide Nano-composites
      Y. Sakka, S. Saito, A. Honda and T. S. Suzuki
9:00  B-3  Packing Structure in Alumina Powder Compacts
      K. Uematsu, S. Tanaka and Y. Kuwano
9:30  B-4  Controlled Processing, Microstructure, and Properties of ZnO-based Varistors
      (Invited)
      Sandia National Laboratories, USA

Session Chair (B5-10): K. Ewsuk, Sandia National Laboratories, USA
10:15  B-5  EBSD – A Tool for Materials Characterization
       G. Nolze
10:30  B-6  Colloidal Consolidation of Two-component Oxide Particles
       N. Matsunaga, S. Ueno, Y. Tanaka and Y. Hirata
10:45  B-7  Preparation of Lead Zirconate Titanate (PZT) Aqueous Suspension using
       Ammonium Polyacrylate Dispersant
       N. Traiphol and R. Suntako
       Chulalongkorn University, Thailand
11:00  B-8  Improvement of Particle Dispersability in Non-aqueous Media using Surface
       Modification
       C. Takai, M. Fuji, and M. Takahashi
       Nagoya Institute of Technology, Japan
11:15  B-9  Self-dispersible Silica Nanoparticles Modified with Aminoalkylsilane
       T. Kakui, M. Ishii, S. Sato and M. Ishiguro
       Chemicals Research Laboratories, Chemical Division, Lion Co.,Ltd, Japan
11:30  B-10 Low Temperature Co-fired Ceramics (LTCC) - Design of Interfaces and their
       Characterization (Invited)
       T. Rabe and W. A. Schiller, M. Eberstein
       Federal Institute for Materials Research and Testing, Germany
Thursday, September 7, 2006

13:30  Session B

Venue: 2F Japanese Style Hall

Nano-particles and Powders

Session Chair (B11-15): R. Waesche, BAM, Germany

13:30  B-11 Synthesis and Processing of Ceramic and Metal Colloids for Nanomedical Applications (Invited)

14:00  B-12 Development of Nanoencapsulated Curcumin in Chitosan for Cosmetic Use via Evaporation of O/W/O Emulsion

14:15  B-13 Pd-DNA Hybrid Nanoparticles for Highly-sensitive Hydrogen Sensor

14:30  B-14 Modifications of Oxide Nanoparticles with High-density RF Plasmas

14:45  B-15 The Role of Surface Modification of Gold Nanoparticle on The Device Performance of Polymer Bistable Device (Invited)

Session Chair (B16-20): K. Komeya, Yokohama National University, Japan

15:30  B-16 Development of TiN Nano Particle Dispersed Si3N4 Ceramics by Powder Composition Technique

15:45  B-17 Structural and Morphological Study of Nanoceramics Prepared by Spray Pyrolysis

16:00  B-18 Synthesis of Nanoparticles by The Flash-Creation-Method

Materials Research Institute, The Pennsylvania State University, USA

W. Tanthapanichakoon*, N. Sowad** and T. Charinpanitkul**

*National Nanotechnology Center, Thailand

**Center of Excellence in Particle Technology, Dept. of Chemical Engineering, Chulalongkorn University, Thailand

S. Ohara, Y. Hatakeyama, M. Umetsu, T. Naka, and T. Adschiri

Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan

Y. Setsuhara, H. Nakayama, K. Takenaka, H. Abe and K. Nogi

Joining and Welding Research Institute, Osaka University, Japan

U. Paik and S. Lee

Hanyang University, Korea

J. Tatami, H. Watanabe, T. Wakahara, K. Komeya and T. Meguro

Yokohama National University, Japan


*Universidad Carlos III de Madrid, Spain

** Institute of Technical Sciences of Serbian Academy of Sciences and Arts, Serbia and Montenegro

A. Watanabe*, M. Fujii*, M. Kawahara*, T. Fukui*, and K. Nogi**

*Hosokawa Powder Technology Research Institute, Japan

**Joining and Welding Research Institute, Osaka University, Japan
<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>16:15</td>
<td><strong>B-19</strong> Influence of Water Content of Starting Powder Mixture on The Mechanochemical Synthesis of Strontium Doped Lamthanum Manganese</td>
</tr>
<tr>
<td></td>
<td>*Chulalongkorn University, Thailand</td>
</tr>
<tr>
<td></td>
<td>**Joining and Welding Research Institute, Osaka University, Japan</td>
</tr>
<tr>
<td></td>
<td>**National Nanotechnology Center, Thailand</td>
</tr>
<tr>
<td>16:30</td>
<td><strong>B-20</strong> Titania-Carbon Nanotube Interface for Advanced Photocatalysis (Invited)</td>
</tr>
<tr>
<td></td>
<td>W. Sigmund and G.Pyrgiotakis</td>
</tr>
<tr>
<td>17:00</td>
<td>Materials Science and Endineering Department, University of Florida, USA</td>
</tr>
</tbody>
</table>

---

**Friday, September 8, 2006**

8:30

Session C

Venue: B1F Florence

**Interface Characterization and Control**

Session Chair (C1-4): H.Fujii, Joining and Welding Research Institute, Osaka University, Japan

<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30</td>
<td><strong>C-1</strong> Mechanisms of Interfacial Reactions in Metal/ Non-oxide Ceramic Systems - Relation with Wetting (Invited)</td>
</tr>
<tr>
<td></td>
<td>F. Hodai, A. Koltsov and N. Eustathopoulos</td>
</tr>
<tr>
<td></td>
<td>INP Grenoble-ENSEEG, LTPCM, France</td>
</tr>
<tr>
<td>9:00</td>
<td><strong>C-2</strong> Interface Dynamics of Sintering: Bonding of Particles</td>
</tr>
<tr>
<td></td>
<td>F. Wakai, M. Yoshida, Y. Shinoda, and T. Akatsu</td>
</tr>
<tr>
<td>9:15</td>
<td><strong>C-3</strong> Improvement of Molten-Metal Wettability to The Ceramics by Morphology Control in Micro-Macro Level</td>
</tr>
<tr>
<td></td>
<td>H. Kita, H. Hyuga, N. Kondo and K. Yoshida</td>
</tr>
<tr>
<td></td>
<td>National Institute of Advanced Industrial Science and Technology, Japan</td>
</tr>
<tr>
<td>9:30</td>
<td><strong>C-4</strong> Using Oxy-redox Reactions for In Situ Synthesis of Composite Materials (Invited)</td>
</tr>
<tr>
<td></td>
<td>N. Sobczak* and R. Asthana**</td>
</tr>
<tr>
<td>10:00</td>
<td>*Foundry Research Institute, Portland</td>
</tr>
<tr>
<td></td>
<td>**University of Wisconsin-Stout, USA</td>
</tr>
</tbody>
</table>

Session Chair (C5-9) : W. Tanthapanichakoon, National Nanotechnology Center, Thailand

<table>
<thead>
<tr>
<th>Time</th>
<th>Session/Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:15</td>
<td><strong>C-5</strong> Surface Tension Measurement Using a Falling Droplet with Acoustic Levitation Technique</td>
</tr>
<tr>
<td></td>
<td>T. Matsumoto, G. Yamada, H. Fujii, M. Kamai and K. Nogi</td>
</tr>
<tr>
<td></td>
<td>Joining and Welding Research Institute, Osaka University, Japan</td>
</tr>
<tr>
<td>10:30</td>
<td><strong>C-6</strong> An Interface-Mode Behaviour in 2-D Acoustic Superlattices of Altered Phase</td>
</tr>
<tr>
<td></td>
<td>J. Kapelewski, B. Lila and A. Dukata</td>
</tr>
<tr>
<td>10:45</td>
<td>Military University of Technology, Warsaw, Polnd</td>
</tr>
</tbody>
</table>
10:45 C-7 Characterization of The LiV$_3$O$_8$ Nanograin/Electrolyte Interface upon Cycling in a Lithium Battery (Invited)
F. Tanguy, J. Gaubicher, P. Soudan, V. Mauchamp, N. Bourgeon, G. Ouvrard and D. Guymard
Institut des Materiaux Jean Rouxel, Laboratoire de Chimie des Solides, France

11:15 C-8 Stability of Solid Electrolyte Interface on Silicon Anode of Rechargeable Lithium Battery
K. Kanamura, Y. Chiba, and K. Dokko
Tokyo Metropolitan University, Japan

11:30 C-9 Dendritic Growth at a Lithium Electrode/Electrolyte Interface: Recent Results
(Invited)
*Ecole Polytechnique, France
**Université de Picardie Jules Vernes, France
***MADIREL,Université de Provence-CNRS, France
****EDF/R&D division, Moret sur Loing, France

Friday, September 8, 2006
8:30
Session D
12:00
Venue: 2F Japanese Style Hall
Energy and Environment

Session Chair (D1-4): H. Makino, Central Research Institute of Electric Power Industry, Japan

8:30 D-1 Formation, Control and Environmental Impact of Pm and Trace Metals from Coal Combustion (Invited)
P. F. Nelson
Macquarie University, Australia

9:00 D-2 Mechanism of Cohesive Dust Cake Formation on Ceramic Tube Filter as a Main Cause of Pressure Drop Increase in High Temperature Gas Cleaning Process
N. Misawa*, H. Sasatsu*, S. Sakuno* and H. Kamiya**
*Electric Power Development Co.,Ltd., Japan
**Tokyo University of Agriculture and Technology, Japan

9:15 D-3 Simulation of Filtration Process of Fabric Filter
Y. Yao*, N. Mao**, M. Wada***, H. Kamiya**** and C. Kanaoka***
*Zhejiang Feida Enviro. Co., Ltd.,China
**Northeastern University, China
***Ishikawa National College of Technology, Japan
****Tokyo University of Agriculture and Technology, Japan
D-4  Sampling and Characterization of PM10 Fractions of Ambient Particulate Matters in Bangkok Utilizing a Cascade Virtual Impactor (Invited)
T. Praserttachat*, S. Suvachitanont*, M. Furuuchi**, W.W. Szymanski***
*Kasetsart University, Thailand
**Military Institute of Chemistry and Radiometry, Poland
***University of Vienna, Austria

Session Chair (D5-9): H. Kamiya, Tokyo University Agri. and Technol., Japan

D-5  Particle-related Standard Reference Materials (SRMS) for The Determination of Organic and Inorganic Contaminants (Invited)
National Institute of Standards and Technology, USA

D-6  Evaluation of The Long Term Stability of LSM/ScSZ Composite Powder Materials for SOFC Cathodes
*Tokyo Electric Power Co., Ltd, Japan
**Joining and Welding Research Institute, Osaka University, Japan

D-7  A Novel Concept and Approach to Fabricate Protective KB/PVdF Composite Films on Metallic Bipolar Plates for PEM Fuel Cells
*Hosokawa Powder Technology Research Institute, Japan
**Kurimoto, LTD, Japan
***Okayama University, Japan

D-8  Thermal Conductivity Characterization of Porous Ceramics Fabricated by Gel Casting
H. Takegami, Y. Tomida, M. Fuji and M. Takahashi
Nagoya Institute of Technology, Japan

D-9  Characterization Issues in Evaluating Biological Effects of Nanomaterials (Invited)
M. Palazuelos***, K. Siebein****, G. Erdos***, B. Moudgil*, and K. W. Powers*
*Particle Engineering Research Center, University of Florida, USA
**Department of Chemical Engineering, University of Florida, USA
***Interdisciplinary Center for Biotechnology Research, University of Florida, USA
****Major Analytical Instrumentation Center, University of Florida, USA
Saturday, September 9, 2006

8:30  Session E

12:00  Venue: B1F Florence

Smart Processing Technology

Session Chair (E1-4): T. Takemoto, Joining and Welding Research Institute, Osaka University, Japan

8:30  E-1  Control Factor of Aerosol Deposition for Forming of Fine Ceramic Layer (Invited)
  J. Akedo
  9:00  National Institute of Advanced Industrial Science and Technology, Japan

9:00  E-2  Fabrication of Ba$_{6.31}$Sm$_{8.25}$Ti$_{18}$O$_{54}$ Thick Films Using Aerosol Deposition Method
  *College of Electronics and Information, Kwangwoon University, Korea
  ** Tokyo Institute of Technology, Japan
  *** National Institute of Advanced Industrial Science and Technology, Japan

9:15  E-3  Roles of Interfacial Interaction, Interchain Interaction, and Molecular Segregation
  on Dewetting Behavior of Polymeric Thin Films: The AFM Study
  R. Traiphol
  Department of Chemistry, Faculty of Science, Naresuan University, Thailand

9:30  E-4  Nanoscale Particle Processing through Aerosol Routes (Invited)
  O. B. Milosevic
  10:00  Serbian Academy of Sciences and Arts, Serbia and Montenegro

Session Chair (E5-9) : Y. Miyamoto, Joining and Welding Research Institute, Osaka University, Japan

10:15  E-5  Non-equilibrium Doping and Phase Selection in TiO$_2$ Nanoparticles Prepared
  through Reactive Thermal Plasma Processing
  *National Institute for Materials Science, Japan
  **Department of Materials Chemistry, Honei University, Japan

10:30  E-6  A Treatment of Carbonaceous Waste Containing Metals by Steam Plasma
  H. Nishikawa*, S. Higuchi**, M. Tanaka* and T. Takemoto*
  11:45  *Joining and Welding Research Institute, Osaka University, Japan
  **Graduate School of Engineering, Osaka University, Japan

10:45  E-7  Inclusion Utilization Technology in Microstructure Control
  Y. Komizo and H. Terasaki
  11:00  Joining and Welding Research Institute, Osaka University, Japan

11:00  E-8  Formation of Band Gap and Localized Mode in Photonic Crystals with Inverse
  Diamond Structures
  S. Kirihara and Y. Miyamoto
  11:15  Joining and Welding Research Institute, Osaka University, Japan
11:15 E-9 Processing Techniques for Microcellular Ceramic Foams (Invited)  
*Ceramic Materials Group, Korea Institute of Machinery & Materials, Korea  
**Korea Institute of Machinery and Materials, Korea  

11:45 E-10 Effect of Adsorption of Polyacrylic Acid Under Ultrasonic Irradiation on Dispersion and Aggregate Size of TiO₂ Nanoparticles in Concentrated Aqueous Suspension  
K. Sato*, J. Li*, T. Ishigaki* and H. Kamiya**  
*National Institute for Materials Science, Japan  
**Graduate School of Bio-Applications and Systems Engineering, Tokyo University of Agriculture and Technology, Japan  

Saturday, September 9, 2006  
8:30  
Session F  
12:00  
Venue: 2F Japanese Style Hall  
Materials Design  

Session Chair (F1-4): Y. Fukumori, Kobe Gakuin University, Japan  
8:30 F-1 New Hybrid Carbon Nanomaterial: Fullerene-Functionalised Carbon Nanotubes (Invited)  
*Center for New Materials and Department of Engineering Physics and Mathematics, Helsinki University of Technology, Finland  
**Seoul National University, Korea  
****VTT Technical Research Center, Finland  
*****University of Oklahoma, USA  
******Laboratory of Physics, Department of Engineering Physics and Mathematics, Helsinki University of Technology, Finland  
*******Michigan State University, USA  

9:00 F-2 Synthesis of Titania Thin Films by Cathodic Electrodeposition  
T. Uchikoshi, N. Shirahata, T. S. Suzuki and Y. Sakka  
National Institute for Materials Science, Japan  

9:15 F-3 The Fracture Simulation of The Al-Zn Carbon Fibers Composite  
P. Cobzaru and D. Nedelcu  
Technical University “Stefan cel Mare” of Suceava Romania  

9:30 F-4 Characteristics of ITO Films Deposited by DC Magnetron Sputtering Using Various Sintered Indium-Tin-Oxide Targets (Invited)  
*Pusan National University, Korea  
**SAMSUNG CORNING Co., LTD., Korea  

Session Chair (F5-9) : M. Takahashi, Nagoya Institute of Technology, Japan  
10:15 F-5 Carbon Nanotube Ceramic Composites (Invited)  
L. Gao  
10:45 Shanghai Institute of Ceramics, China
10:45  F-6  Structure of Non-crystalline Silicon Oxynitride Elucidated by a High-Energy X-ray Diffraction Method

*Yokohama National University, Japan
**Japan Synchrotron Radiation Research Institute, Japan

11:00  F-7  Characterization of Surface Morphology of Organic and Inorganic Hybrid Thin Films - A First Trial for Artificial Cell Membrane -

W. Manabe, H. Takano, and M. Itoh
Department of Chemical Engineering and Materials Science, Doshisha University, Japan

11:15  F-8  Ion Permiability and Membrane Potential of Organic and Inorganic Hybrid Thin Films - Characterization of Artificial Cell Membrane -

R. Okamura*, H. Takano**, and M. Itoh**
*Department of Science of Environment and Mathematical Modeling, Doshisha University, Japan
**Department of Chemical Engineering and Materials Science, Doshisha University, Japan

11:30  F-9  Influence of Type of Cations on The Intergranular Phase Crystallisation of SiAlON Ceramics (Invited)

*MDA Advanced Ceramics, Eskisehir, Turkey
**Faculty of Engineering and Architecture, Anadolu University, Turkey
***CeramTec AG, Plochingen, Germany