

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**

9:15 D. V. Louzguine-Luzgin*, G. Xie*, A. Murakami*, K. Nakata**, H. M.
Kimura* and A. Inoue*

*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**
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9:30 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)
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10:00 M.Chen
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**
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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)
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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 Department of Materials Science and Metallurgy, University of Cambridge, UK

14:00 A-10 **Kinetics of High Temperature Liquid Spreading** (Invited)

} A. P. Tomsia and E. Saiz

14:30 Materials Science Division, Lawrence Berkeley National Laboratory, USA

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 Materials and Structures Laboratory, Tokyo Institute of Technology, Japan

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

} H. Murakawa*, H. Serizawa*, M. Tejima**, K. Taguchi** and S. Itoh**

15:00 *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. Poulhier, B. Naït-Ali, A. Michot and J. Absi

16:00 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 Laboratory of New-Structured Materials, Department of Materials Science and Engineering, Zhejiang University, China

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

17:00 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)

} G. L. Messing, S.-H. Lee, S. Kochawattana, and K. Appiagyei

9:00 The Pennsylvania State University, USA

9:00 B-2 Fabrication of Textured Alumina-Mullite-Silicon Carbide Nano-composites

} Y. Sakka, S. Saito, A. Honda and T. S. Suzuki

9:15 National Institute for Materials Science, Japan

9:15 B-3 Packing Structure in Alumina Powder Compacts

} K. Uematsu, S. Tanaka and Y. Kuwano

9:30 Nagaoka University of Technology, Japan

9:30 B-4 Controlled Processing, Microstructure, and Properties of ZnO-based Varistors
(Invited)

10:00 K. G. Ewsuk, M. W. Reiterer, and C. B. DiAntonio

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 National Institute of Advanced Industrial Science and Technology, Germany

10:30 B-6 Colloidal Consolidation of Two-component Oxide Particles

} N. Matsunaga, S. Ueno, Y. Tanaka and Y. Hirata

10:45 Kagoshima University, Japan

10:45 B-7 Preparation of Lead Zirconate Titanate (PZT) Aqueous Suspension using
Ammonium Polyacrylate Dispersant

11:00 N. Traiphol and R. Suntako

Chulalongkorn University, Thailand

11:00 B-8 Improvement of Particle Dispersability in Non-aqueous Media using Surface
Modification

11:15 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

11:30 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)

12:00 T. Rabe and W. A. Schiller, M. Eberstein

Federal Institute for Materials Research and Testing , Germany

Thursday, September 7, 2006

13:30

} Session B

17:00

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)

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14:00

J. H. Adair

Materials Research Institute, The Pennsylvania State University, USA

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

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14:15

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

*National Nanotechnology Center, Thailand

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

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

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14:30

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

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

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

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14:45

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

Joining and Welding Research Institute, Osaka University, Japan

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

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15:15

U. Paik and S. Lee

Hanyang University, Korea

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**

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15:45

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

Yokohama National University, Japan

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

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16:00

M.E. Rabanal*, L.S. Gomez*, J.M. Torralba*, L. Mancic** and O. Milosevic**

*Universidad Carlos III de Madrid, Spain

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

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

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16:15

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

- 16:15 **B-19 Influence of Water Content of Starting Powder Mixture on The Mechanochemical
Synthesis of Strontium Doped Lanthanum Manganite**
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- 16:30 J. Chaichanawong***, K. Sato**, H. Abe**, T. Charinpanitkul**,
W. Tanthapanichakoon*** and M. Naito**
*Chulalongkorn University, Thailand
**Joining and Welding Research Institute, Osaka University, Japan
***National Nanotechnology Center, Thailand
- 16:30 **B-20 Titania-Carbon Nanotube Interface for Advanced Photocatalysis** (Invited)
}
- 17:00 W. Sigmund and G. Pyrgiotakis
Materials Science and Engineering Department, University of Florida, USA

Friday, September 8, 2006

8:30

} **Session C**

12:00

Venue: B1F Florence

Interface Characterization and Control

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

8:30 **C-1 Mechanisms of Interfacial Reactions in Metal/ Non-oxide Ceramic Systems -
Relation with Wetting** (Invited)
}

9:00 F. Hodaj, A. Koltsov and N. Eustathopoulos
INP Grenoble-ENSEEG, LTPCM, France

9:00 **C-2 Interface Dynamics of Sintering: Bonding of Particles**
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9:15 F. Wakai, M. Yoshida, Y. Shinoda, and T. Akatsu
Tokyo Institute of Technology, Japan

9:15 **C-3 Improvement of Molten-Metal Wettability to The Ceramics by Morphology Control
in Micro-Macro Level**
}

9:30 H. Kita, H. Hyuga, N. Kondo and K. Yoshida
National Institute of Advanced Industrial Science and Technology, Japan

9:30 **C-4 Using Oxy-redox Reactions for In Situ Synthesis of Composite Materials** (Invited)
}

10:00 N. Sobczak* and R. Asthana**
*Foundry Research Institute, Poland
**University of Wisconsin-Stout, USA

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

10:15 **C-5 Surface Tension Measurement Using a Falling Droplet with Acoustic Levitation
Technique**
}

10:30 T. Matsumoto, G. Yamada, H. Fujii, M. Kamai and K. Nogi
Joining and Welding Research Institute, Osaka University, Japan

10:30 **C-6 An Interface-Mode Behaviour in 2-D Acoustic Superlattices of Altered Phase**
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10:45 J. Kapelewski, B. Lila and A. Dukata
Military University of Technology, Warsaw, Poland

- 10:45 } **C-7 Characterization of The LiV_3O_8 Nanograin/Electrolyte Interface upon Cycling in a Lithium Battery** (Invited)
 11:15 F. Tanguy, J. Gaubicher, P. Soudan, V. Mauchamp, N. Bourgeon, G. Ouvrard and D. Guyomard
 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**
 11:30 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)
 12:00 A. Teyssot*, M. Rosso*, L. Sannier**, J.-M. Tarascon**, R. Bouchet***, S. Lascaud****
 *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)

9:00 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**

9:15 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**

9:30 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

9:30 **D-4 Sampling and Characterization of PM10 Fractions of Ambient Particulate**
? **Matters in Bangkok Utilizing a Cascade Virtual Impactor (Invited)**
10:00 T. Praserttachato*, S. Suvachittanont*, 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

10:15 **D-5 Particle-related Standard Reference Materials (SRMS) for The Determination of**
? **Organic and Inorganic Contaminants (Invited)**

10:45 D. L. Poster, M. M. Schantz, J. Keller, J. R. Kucklick, L. C. Sander, S. S. Vander Pol,
and S. A. Wise
National Institute of Standards and Technology, USA

10:45 **D-6 Evaluation of The Long Term Stability of LSM/ScSZ Composite Powder Materials**
? **for SOFC Cathodes**

11:00 A. Hagiwara*, N. Hobara*, H. Shimada*, K. Takizawa* K. Sato**, H. Abe** and M.
Naito**
*Tokyo Electric Power Co.,Ltd, Japan
**Joining and Welding Research Institute, Osaka University, Japan

11:00 **D-7 A Novel Concept and Approach to Fabricate Protective KB/PVdF Composite Films**
? **on Metallic Bipolar Plates for PEM Fuel Cells**

11:15 J. Yin*, T. Fukui*, K. Murata*, T. Hirabayashi**, S. Yamamuro**, M. Matsuda*** and
M. Miyake***
*Hosokawa Powder Technology Research Institute, Japan
**Kurimoto, LTD, Japan
***Okayama University, Japan

11:15 **D-8 Thermal Conductivity Characterization of Porous Ceramics Fabricated by Gel**
? **Casting**

11:30 H. Takegami, Y. Tomida, M. Fuji and M. Takahashi
Nagoya Institute of Technology, Japan

11:30 **D-9 Characterization Issues in Evaluating Biological Effects of Nanomaterials (Invited)**
? M. Palazuelos***, K. Siebein****, G. Erdos***, B. Moudgil*, and K. W. Powers*

12:00 *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 $Ba_{6-3x}Sm_{8+2x}Ti_{18}O_{54}$ Thick Films Using Aerosol Deposition Method**

} S. M. Nam*, M. Momotani**, H. Kakemoto**, S. Wada**, J. Akedo*** and T.

9:15 Tsurumi**

*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

9:30 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**

10:30 } T. Ishigaki*, J. Li*, M. Ikeda***, R. Ye*, K. Sato* and Y. Moriyoshi**

*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**

11:15 } S. Kirihara and Y. Miyamoto

Joining and Welding Research Institute, Osaka University, Japan

- 11:15 **E-9 Processing Techniques for Microcellular Ceramic Foams** (Invited)
 } Y.-W. Kim*, D.-H. Jang*, H.-D. Kim** and I.-H. Song**
 11:45 *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**
 12:00 **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)
 9:00 A. G. Nasibulin*, P. V. Pikhitsa**, H. Jiang***, P. Queipo*, A. Moisala*, D. P.
 Brown*, D. Gonzalez*, G. Lolli****, A. V. Krasheninnikov*****, S. D. Shandakov*,
 D.E. Resasco****, M. Choi**, D. Tománek***** and E. I. Kauppinen*,**
 *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
 9:15 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
 9:30 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)
 10:00 J. H. Park*, S. C. Lee**, J. H. Lee** and P. K. Song*
 *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**
 11:00 } **Diffraction Method**
T. Wakihara*, T. Yamakawa*, S. Kohara**, J. Tatami*, K. Komeya* and T. Meguro*
 *Yokohama National University, Japan
 **Japan Synchrotron Radiation Research Institute, Japan
- 11:00 } **F-7 Characterization of Surface Morphology of Organic and Inorganic Hybrid Thin**
 11:15 } **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**
 11:30 } **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**
 12:00 } **Ceramics (Invited)**
 N. Calis Acikbas*, A. Kara**, S. Turan**, F. Kara**, H. Mandal** and B. Bitterlich***
 *MDA Advanced Ceramics, Eskisehir, Turkey
 **Faculty of Engineering and Architecture, Anadolu University, Turkey
 ***CeramTec AG, Plochingen, Germany