Poster Session

Thursday, September 7, 2006, 17:20-18:50

Venue: Hotel Nikko Kurashiki

Session A: Joining Technology for New Metallic Glasses and Inorganic Materials

PA-1 Formation of Fe-base Metal Glass Coating by Smart Plasma Spraying Process
*Joining and Welding Research Institute, Osaka University, Japan
**Institute for Materials Research, Tohoku University, Japan

PA-2 Fabrication of Colloidal Photonic Crystals of Submicron-Sized Spheres
D. Nagao, M. Hirose, Y. Kobayashi, M. Konno
Graduate School of Engineering, Tohoku University, Japan

PA-3 Characterization of Al2O3 Particulate Reinforced Zr55Cu30Al10Ni5 Metallic Glass Matrix Composite Fabricated by Spark Plasma Sintering Process
G. Xie, D. V. Louguine-Luzgin, H. Kimura, and A. Inoue
Institute for Materials Research, Tohoku University, Japan

PA-4 Fabrication and Characterization of Porous Zr55Cu30Al10Ni5 Bulk Metallic Glass By Spark Plasma Sintering Process
G. Xie, W. Zhang, Q. Zhang, D. V. Louguine-Luzgin, H. Kimura, and A. Inoue
Institute for Materials Research, Tohoku University, Japan

PA-5 Mechanical Properties of Friction Stir Welded Ti Joint
H. Fujii, H. Kato, K. Nakata and K. Nogi
Joining and Welding Research Institute, Osaka University, Japan

PA-6 Silica-Coating of Barium Titanate Particles
H. Matsumoto, D. Nagao, Y. Kobayashi and M. Konno
Graduate School of Engineering, Tohoku University, Japan

PA-7 Effect of Rotation Speed of Probe on Stir Zone Properties for Adjustable Friction Stir Welding
H. Fujii, H. Kato, T. Tsumura, K. Nakata and K. Nogi
Joining and Welding Research Institute, Osaka University, Japan

PA-8 Dissolution of Hydrogen into Tungsten Phosphate Glasses through Palladium Coating
*Kawazoe Frontier Technologies Corporation, Japan
**Institute of Industrial Science, The University of Tokyo, Japan
***Materials and Structures Laboratory, Tokyo Institute of Technology, Japan

PA-9 Fumed Alumina/SiC Porous Composite for Efficient Thermal Insulation at High Temperature
H. Abe, I. Abe, M. Naito
Joining and Welding Research Institute, Osaka University, Japan
PA-10  Wear Property of Metallic Glass Sprayed Coatings by HVOF on Lightweight Metal Substrate
*Joining and Welding Research Institute, Osaka University, Japan
**TOPY Industries, Limited, Japan
***Toyohashi University of Technology, Japan
****Institute for Materials Research Tohoku University, Japan

PA-11  Structures of Metallic Glass Films by Sputtering Method with Zr_{55}Al_{10}Ni_{15}Cu_{30} Targets
*Joining and Welding Research Institute, Osaka University, Japan
**Institute for Materials Research, Tohoku University, Japan

PA-12  Photoelectron Spectroscopic Study of Energy Level Alignment at C12A7:ce- / Alq3 Interfaces
*Materials and Structures Laboratory, Tokyo Institute of Technology, Japan
**ERATO-SORST, Japan Science and Technology Agency, Japan
***Frontier Collaborative Reserach Center, Tokyo Institute of Technology, Japan

PA-13  Effect of the Carbon Content on The Mechanical Properties and Microstructures of FSW Carbon Steel Joints
*Joining and Welding Research Institute, Osaka University, Japan
**Department of Adaptive Machine Systems, Osaka University, Japan
***Steel Research Laboratory, JFE Steel Corporation, Japan

PA-14  Effect of D.C. Voltage Application on Interface Between Liquid State Metals and Glass
M. Takahashi and K. Ikeuchi
Joining and Welding Research Institute, Osaka University, Japan

PA-15  Development of Nanoceramics: Application to Diffusion Bonding
M. Yoshida, Y. Shinoda, T. Akatsu and F. Wakai
Materials and Structures Laboratory, Tokyo Institute of Technology, Japan

PA-16  Influences of Friction Stir Welding Parameters on Microstructure and Mechanical Properties of AA2024-T3 Aluminum Alloy
S. A. Khodir, T. Shibayanaagi and M. Naka
Joining and Welding Research Institute, Osaka University, Japan

PA-17  Effects of Processing Temperature on Bonding Behavior of Hydroxyapatite Ceramics and Titanium by Hydrothermal Hot-pressing Method
T. Onoki*, T. Hashida**, Y. Tanabe***, E. Yasuda*
*Materials and Structures Laboratory, Tokyo Institute of Technology, Japan
**Fracture and Reliability Research Institute, Tohoku University, Japan
***Chemical Engineering, Graduate School, Nagoya University, Japan

PA-18  Orientation Distribution in Friction Stir Processed A6061 Aluminum Alloy
T. Matsumoto and T. Shibayanaagi
Joining and Welding Research Institute, Osaka University, Japan
PA-19  Weldability and Mechanical Property of Ni_{53}Nb_{20}Ti_{10}Zr_{5}Co_{4}Cu, Metallic Glass Foil by Laser Welding
*Joining and Welding Research Institute, Osaka University, Japan
**Graduate Student, Graduate School of Engineering, Osaka University, Japan
***Research Laboratory, Ishikawajima-Harima Heavy Industries, Co., Ltd, Japan
****Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan
*****Institute for Materials Research, Tohoku University, Japan

PA-20  Hydrothermal Synthesis of Hydroxyapatite and Hydroxyapatite/TiO_{2} Nanocrystals
T. Watanabe, P. Suaridworakun, D. Pongkao, and M. Yoshimura
Materials and Structures Laboratory, Tokyo Institute of Technology, Japan

PA-21  CaTiO_{3} Film Formation on Ti and Ti-Alloy by Electrochemical Process for Hydroxyapatite Deposition
*Materials and Structures Laboratory, Tokyo Institute of Technology, Japan
**Institute of Materials Research, Tohoku University, Japan
***Joining and Welding Research Institute, Osaka University, Japan

PA-22  Magnetic Domain Structures of Ferromagnetic Fe Dots at Fe/BaTiO_{3} Interfaces
T. Taniyama*, D. Fu***, M. Itoh*, T. Takashima***, and B. Prijamboedi***
*Materials and Structures Laboratory, Tokyo Institute of Technology, Japan
**Exploratory Research for Advanced Technology, Japan Science and Technology Agency, Japan
***National Institute of Advanced Industrial Science and Technology, Japan

PA-23  Glass Transition Phenomena and Heat Capacity of Zr_{0.55}Al_{0.16}Ni_{0.05}Cu_{0.30}
*Materials and Structures Laboratory, Tokyo Institute of Technology, Japan
**Institute for Materials Research, Tohoku University, Japan

PA-24  Joining Process of Micro Flash Butt Welding
T. Kuroda, K. Ikeuchi and M. Shimada
Joining and Welding Research Institute, Osaka University, Japan

PA-25  Development of Fiber Laser Aided Spot Heating System and Its Application to Control of Microstructure in Pure Aluminum
T. Shibayamani, M. Tsukamoto, N. Matsuda, Y. Sogo and N. Abe
Joining and Welding Research Institute, Osaka University, Japan

PA-26  Preparation of MTES Hybrid Bioactive Coating on Metal Surfaces by Sol-Gel Method
Y. Hoshikawa*, E. Yasuda*, T. Onoki*, M. Akao** and Y. Tanabe*****
*Materials and Structures Laboratory, Tokyo Institute of Technology, Japan
**Institute of Biomaterials and Bioengineering, Tokyo Medical and Dental University, Japan
****Chemical Engineering, Graduate School, Nagoya University, Japan
Session B: Nano-particles and Powders

PB-1 Joining of Ceramic Components in The Green State
C. Paulick, G. Steinborn and R. Waesche
Federal Institute for Materials Research and Testing (BAM), Germany

PB-2 Morphology of Silver Nanoparticles Prepared by Chemical Reduction Method
K. J. Park*, D. S. Seo** and J. K. Lee*
*Department of Advanced Materials Engineering, Chosun University, Korea
**School of Materials Science and Engineering, Seoul National University, Korea

PB-3 Interaction Between Dispersant and Ethyl Cellulose Binder at Solid—Liquid Interface
S. Lee, J.-A. Choi, and U. Paik
Division of Advanced Materials Science Engineering, Hanyang University, Korea

PB-4 Anisotropic Sintering Shrinkage and Grain Growth for Spherical Alumina Powder Compacts Aligned in High Magnetic Field
*Materials College, South China University of Technology, China
**Department of Chemistry, Nagaoka University of Technology, Japan

PB-5 Preparation of Titania Nanopowder with Industrial Titaniferous Solution
Y. Liu, A. Shui, L. Zeng, P. Liu, H. Wang, X. Cheng and W. Sheng
College of Materials Science and Engineering, South China University of Technology, China

PB-6 Electrodeposition of Alumina Precursor on Silicon Carbide Surface
M. Murao*, T. Maeda*, N. Matsunaga**, S. Sameshima* and Y. Hirata*
*Department of Advanced Nanostructured Materials Science and Technology, Kagoshima University, Japan
**Department of Applied Chemistry and Chemical Engineering, Kagoshima University, Japan
PB-7 Effect of Mo Surface Conditions on the Fabrication of Mo-SiO$_2$ Functionally Graded Materials via Slipcasting
*TOTO Ltd., Advanced Ceramic Division, Japan
**Department of Materials Science and Engineering, Graduate School of Engineering, Kyushu University, Japan

PB-8 Preparation of Controlled Release Microparticles by A Dry Powder Processing
*Faculty of Pharmaceutical Sciences and Cooperative Research Center for Life Science, Kobe Gakuin University, Japan
**Joining and Welding Research Institute, Osaka University, Japan

PB-9 Nanoscale Control of La$_{0.8}$Sr$_{0.2}$MnO$_3$ Cathode for Intermediate Temperature Solid Oxide Fuel Cell
K. Sato*, J. Chaichanawong**, A. Kondo*, H. Abe* and M. Naito*
*Joining and Welding Research Institute, Osaka University, Japan
**Department of Chemical Engineering, Chulalongkorn University, Thailand

PB-10 Fabrication Thick Ni-YSZ Composite Porous Layer for Electrode Supporting SOFC
M. Uemura, K. Sato, H. Abe and M. Naito
Joining and Welding Research Institute, Osaka University, Japan

PB-11 Hydrothermal Synthesis of Nanostructured Thermoelectric Bi$_2$Te$_3$ Powder
H. Kaga, Y. Kinemuchi, and K. Watari
National Institute of Advanced Industrial Science and Technology, Japan

PB-12 Effect of Ball Milling for Fabrication of BaTiO$_3$ Powders during Hydrothermal Reaction
K. Tsunekawa, Y. Hotta, K. Sato, and K. Watari
National Institute of Advanced Industrial Science and Technology, Japan

PB-13 Synthesis and Sintering of BaTiO$_3$ Powders Prepared from Hydrothermal Process with Ball Milling
Y. Hotta, K. Tsunekawa, K. Sato, T. Nagaoka and K. Watari
National Institute of Advanced Industrial Science and Technology, Japan

PB-14 Characterization of Submicron Particles Using Compression Test
H. Ogiyo, M. Yoshida, and J. Akedo
National Institute of Advanced Industrial Science and Technology, Japan

PB-15 Influence of Nanoporous Structure on Silane Coupling Surface Modification Behavior and Adhesion Properties of Spherical Silica Particles
*Institute of Symbiotic Science and Technology, Tokyo University of Agriculture and Technology, Japan
**Nihon L’Oreal K. K., Japan
PB-16 Effect of Magnetic Field on Orientation of Diamagnetic Ceramic Particles Dispersed in Slurry
S. Tanaka, A. Makiya and K. Uematsu
Department of Material Science and Technology, Nagaoka University of Technology, Japan

PB-18 Microstructure and Mechanical Properties of Textured Alumina Prepared Using a Strong Magnetic Field
T. S. Suzuki, T. Uchikoshi, K. Morita, K. Hiraga and Y. Sakka
Nano Ceramics Center, National Institute for Materials Science, Japan

PB-20 Micro-Patterning of Tin Oxide by Micro-Molding in Capillaries Method and Application as Gas Sensors
J. Imasu, H. Fudouzi and Y. Sakka
National Institute for Materials Science, Japan

PB-21 Gelcasting Formulation of Alumina Slurry Offering Multiple Advantages
R. L. Menchavez, H. Takegami, M. Fuji, and M. Takahashi
Ceramics Research Laboratory, Nagoya Institute of Technology, Japan

PB-22 Effect of Surfactants on The Formation of Hollow CaCO₃ Particle by Bubble Template Method
Y. S. Han, L. Lin, H. Takegami, M. Fuji and M. Takahashi
Ceramics Research Laboratory, Nagoya Institute of Technology, Japan

PB-23 A Facile Method to Synthesize ZnO Particles by Involving Ammonia Bubbles
L. Lin, Y.S. Han, H. Takegami, M. Fuji and M. Takahashi
Ceramics Research Laboratory, Nagoya Institute of Technology, Japan

PB-24 Analysis of Sintering Behavior of SiO₂ Glass Green Bodies by Master Sintering Curve Theory for Viscous Flow
D. Hiratsuka, J. Tatami, T. Wakahara, K. Komeya and T. Meguro
Graduate School of Environment and Information Sciences, Yokohama National University, Japan

PB-25 Synthesis of α- and β-SiAlON Composite Ceramics Using β-SiAlON Powder
*Graduate School of Environment and Information Sciences, Yokohama National University, Japan
**Kanagawa Industrial Technology Center, Japan
PB-26  Sintering Shrinkage Behavior of HfO₂-Added Si₃N₄ Ceramics  
D. Horikawa, J. Tatami, T. Wakihara, K. Komeya and T. Meguro  
Graduate School of Environment and Information Sciences, Yokohama National University, Japan

PB-27  In-Situ Measurement of Sintering Behavior of Porous Silicon Carbide Ceramics  
N. Matsuzawa, R. Kobayashi, J. Tatami, T. Wakihara, K. Komeya and T. Meguro  
Graduate School of Environment and Information Sciences, Yokohama National University, Japan

PB-28  Novel Rapid Drying Technique for Slip Cast Body  
T. Shirai, M. Yasuoka, Y. Kinemuchi, Y. Hotta, and K. Watari  
National Institute of Advanced Industrial Science and Technology, Japan

PB-29  Investigations on the Interactions between Alumina Surfaces in Polyacrylic Acid Solutions Containing Magnesium Ions by Atomic Force Microscopy  
J. Sun*, L. Bergstrom**, L. Gao*  
*The State Key Lab on High Performance Ceramics and Superfine Microstructure, Shanghai Institute of Ceramics, Chinese Academy of Sciences, China  
**Department of Physical, Inorganic and Structural Chemistry, Arrhenius Laboratory, Sweden

PB-30  Sintering Behavior and Microstructure of CeO₂ added ZnO Ceramics  
S. Tasaki, J. Tatami, T. Wakihara, K. Komeya and T. Meguro  
Graduate School of Environment and Information Sciences, Yokohama National University, Japan

PB-31  Synthesis of α-Si₃N₄ Powder by Carbothermal Reduction Nitridation of Carbon-Coated SiO₂ Particle  
Y. Yoshida, T. Wakihara, J. Tatami, K. Komeya and T. Meguro  
Graduate School of Environment and Information Sciences, Yokohama National University, Japan

PB-32  Birefringence Imaging Reveals Orientation and Packing of Particles in Pre-Sintered Bodies  
G. C. Wei  
OSRAM SYLVANIA Inc., USA

Session C: Interface Characterization and Control

PC-1  Microstructure and Mechanical Properties of Capacitor Discharge Joined Nitride Based Materials with Ti and Al Foils as An Interlayer  
O. Tunçkan*, S. Turan**, and D. Turan*  
*School of Civil Aviation, Anadolu University, Turkey  
**Department of Materials Science and Engineering, Anadolu University, Turkey

PC-2  Modification of Metal Surface with a Diamond—like Carbon Coating  
B. G. Marta, R. Janina, W. Małgorzata  
Foundry Research Institute, Poland
PC-3 Effect of Poly(Acrylic Acid) on The Adhesion Strength and Electrochemical Performance of a Graphite Anode for Lithium Ion Battery
*Division of Advanced Materials Science Engineering, Hanyang University, Korea
**Ceramics Division, Materials Science and Engineering Laboratory, National Institute of Standards and Technology, USA
***Materials LAB, Samsung Advanced Institute of Technology, Korea

PC-4 Microwave Processing of Intermediate Temperature Solid Oxide Fuel Cells: Firing of Electrode Materials onto Electrolyte
M. Matsuda, A. Tada and M. Miyake
Graduate School of Environmental Science, Okayama university, Japan

PC-5 Surface Roughness Modification by Polymethylsilsesquioxane and Silicon Oxycarbide Coating Film
M. Fukushima, S. Nakano and H. Kita
National Institute of Advanced Industrial Science and Technology, Japan

PC-6 Probing the Surface Forces with Scanning Probe Microscopy (SPM)
S. Kimiyasu*, H. Yuji*, W. Koji* and Y. Husevin**
*Advanced Manufacturing Research Institute, National Institute of Advanced Industrial Science and Technology, Japan
**Materials Science and Engineering Department Gebze Institute of Technology, Turkey

PC-7 Preparation of Li1+nV3O8/β-Li1/3V2O5/C Nanocomposites for Li Battery Applications
M. Dubarry, J. Gaubicher, P. Moreau and D. Guyomard
Institut des Matériaux Jean Rouxel, France

PC-8 Preparation of New Nanostructured Manganese Dioxides for Energy Storage
E. Macheauf, J.F. Martin, J.L. Duvail, G. Ovrard and D. Guyomard
Institut des Matériaux Jean Rouxel, France

Session D: Energy and Environment

PD-1 Study of Alum-Ceramic Energy Storage Material
X. Ren, A. Shui, L. Zeng and Y. Liu
College of Materials Science and Engineering, South China University of Technology, China

PD-2 Development of Filtration Technology for PM2.5 in Diesel Exhaust
*Hosokawa Powder Technology Research Institute, Japan
**Chulalongkorn University, Thailand
***Joining and Welding Research Institute, Osaka University, Japan
Session E: Smart Processing Technology

PE-1 Effects of Oxygen Partial Pressure Control on The Microstructure and Electrical Properties of Holmium Doped Barium Titanate
S. K. Jo, J. S. Kim, H. S. Kwoun and Y. H. Han
Department of Materials Engineering, Sungkyunkwan University, Korea

PE-2 Mechanism of Bonding Between Plasma Sprayed Ti-Al Coating and Al₂O₃ Coating
S. Adachi* and K. Nakata**
*Technology Research Institute of Osaka Prefecture, Japan
**Joining and Welding Research Institute, Osaka University, Japan

PE-3 Mechanochemical Synthesis of Barium Titanate with No Media Balls
A. Kondo*, H. Shimoda**, K. Sato*, H. Abe* and M. Naito*
*Joining and Welding Research Institute, Osaka University, Japan
**Institute of Nanotechnology and Material Science, Kurimoto, Ltd., Japan

PE-4 The Effect of Beam Size in Heat Conduction Welding of Thin Films with Direct Diode Laser
N. Abe*, N. Nakamura*, Y. Funada**, and M. Tsukamoto*
*Joining and Welding Research Institute, Osaka University, Japan
**Industrial Research Institute of Ishikawa, Japan

PE-5 Hydroxyapatite Coating on Plastic Plate with an Aerosol Beam
H. Nakano** and N. Abe*
*Joining and Welding Research Institute, Osaka University, Japan
**Kinki University, Japan

PE-6 Large Area Alumina Films Formed by Aerosol Deposition
A. Iwata and J. Akedo
National Institute of Advanced Industrial Science and Technology, Japan

PE-7 Formation of Metal–dielectric Nanocomposite Films by Aerosol Deposition Method
J.-H. Park and J. Akedo
National Institute of Advanced Industrial Science and Technology, Japan

PE-8 Room-temperature Deposited Tunable Ceramic Films by Aerosol Deposition Method
S.-W. Oh, J.-H. Park and J. Akedo
National Institute of Advanced Industrial Science and Technology, Japan

PE-9 Influence of Gas Flow Rate on Microstructure and Mechanical Properties of Hydroxyapatite Coatings Fabricated by Gas Tunnel Type Plasma Spraying
M. F. Mork and A. Koyayashi
Joining and Welding Research Institute, Osaka University, Japan

PE-10 Measurement of Cathode Surface Temperature of Plasma Torch
S. Tashiro, H. Nishikawa and M. Tanaka
Joining and Welding Research Institute, Osaka University, Japan
PE-11 Topology Analysis and Depressing Approach of ε-Cu$_3$Sn Phase at Solder/Cu Interface
F. Gao, H. Nishikawa, T. Takemoto
Joining and Welding Research Institute, Osaka University, Japan

PE-12 Development on Freeform Fabrication Method of Alloys by 3D Micro Welding
T. Horii, S. Kirihara and Y. Miyamoto
Joining and Welding Research Institute, Osaka University, Japan

PE-13 Morphology Control of Aluminium Nitride Particles in Combustion Synthesis Process
M. Radwan, T. Sakurai and Y. Miyamoto
Joining and Welding Research Institute, Osaka University, Japan

PE-14 Freeform Fabrication of Photonic Crystals with 3-Dimensional Diamond Structure by Micro-Stereolithography
W. Chen, S. Kirihara, and Y. Miyamoto
Joining and Welding Research Institute, Osaka University, Japan

PE-15 Properties of Inductivity-Coupled RF Plasmas Sustained with Internal Antenna for Deposition of Carbon-Related Films
K. Takenaka*, Y. Setsuhara*, K. Nishisaka** and A. Ebe**
*Joining and Welding Research Institute, Osaka University, Japan
**EMD Co., Japan

Session F: Materials Design

PF-1 Characterization of Intergranular Phases in Multi Cation Doped Sialon Based Materials
H. Yurdakul and S. Turan
Department of Materials Science and Engineering, Anadolu University, Turkey

PF-2 Mechanical Properties of TiAlN/CrN Multilayer, TiAlN and CrN by R.F Magnetron Sputtering
D. H. Song*, W. Y. Jang** and J. K. Lee*
*Department of Advanced Materials Engineering, Chosun University, Korea
**Department of Advanced Metallurgy and Materials Engineering, Chosun University, Korea

PF-3 Quantive Analysis of Oxidation-Reduction Behavior of Mn-Doped BaTiO$_3$
D. W. Hahn and Y. H. Han
Department of Materials Engineering, Sungkyunkwan University, Korea

PF-4 Plasma Thermal Deposition of Aluminim on Mg-Li Work Hardened Alloy
M. Tsujikawa*, S. Adachi**, S. Oki***, K. Nakata**** and M. Kamita*****
*Osaka Prefecture University, Japan
**Technical Research Institute of Osaka Prefecture, Japan
***Joining and Welding Research Institute, Osaka University, Japan
****Kinki University, Japan
*****Yamani Co. Ltd., Japan
PF-5  Fatigue Strength of Welded Steel Rib-Plate with Laser Shock Peening  
Y. Sakino*, Y.-C. Kim* and Y. Sano**  
*Joining and Welding Research Institute, Osaka University, Japan  
**Power and Industrial Systems Research and Development Center, Toshiba Co., Japan

PF-6  Behavior of Superficial Oxide at Diffusion-Bonded Interface of Tin and its Influence on Bond Strength  
S. Koyama*, M. Takahashi**, and K. Ikeuchi**  
*Graduate student of Osaka University (now at Research Institute for Applied Science), Japan  
**Joining and Welding Research Institute, Osaka University, Japan

PF-7  Fabrication of Homogeneous AlN-SiC Solid Solutions by Heat-Treatment of Dense AlN-SiC Composites  
*Graduate School of Environment and Information Sciences, Yokohama National University, Japan  
**Institute for Metal Research, Tohoku University, Japan

PF-8  The Effects of Functional Groups of Acrylic Resin on The Damping Property of Ceramic Composites  
T. Shimazu***, N. Isu*, M. Miura*, and E. H. Ishida**  
*General Research Institute of Technology, INAX Co., Japan  
**Graduate School of Environmental Studies, Tohoku University, Japan

PF-9  Fabrication and Characterization of Ceramics NANO-Composites from Eutectic Melts in Al₂O₃-R₂O₃-HfO₂ (ZrO₂) and Al₂O₃-R₂O₃-CaO Systems  
M. Yoshimurua, N. Sakamoto, S. Araki, T. Watanabe, A. Sugiyama and N. Matsushita  
Tokyo Institute of Technology, Japan