

POSTER SESSION

Tuesday 11

17:00~18:30 (SEIUN 2)

- PO-01 “Fundamental Study for Solvent Growth of Silicon Carbide Utilizing Fe-Si Melt”
Takeshi Yoshikawa, Sakiko Kawanishi, Toshihiro Tanaka
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-02 “Fundamental Approach for Measurement of Solid-Liquid Interfacial Energies in Alloy”
Atsushi Fukuda, Takeshi Yoshikawa, Toshihiro Tanaka
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-03 “Structure Analysis of Icosahedral Quasicrystals and their Approximants”
Cesar Pay Gómez^{1,2}, Hiroyuki Takakura³, Akiji Yamamoto¹, Marc De Boissieu⁴, An Pang Tsai⁵
¹National Institute for Materials Science; ²International Center for Young Scientists, International Center for Materials Nanoarchitectonics, National Institute for Materials Science; ³Division of Applied Physics, Graduate School of Engineering, Hokkaido University; ⁴Laboratoire de Thermodynamique et de Physico-Chimie Métallurgique, Saint Martin d’Hères, France; ⁵Institute of Multidisciplinary Research for Advanced Materials, Tohoku University
- PO-04 “Multi Phase Separation in Metallic Glass Forming System”
Byung Joo Park¹, Tadakatsu Ohkubo¹, Do Hyang Kim², Kazuhiro Hono¹
¹National Institute for Materials Science; ²Department of Metallurgical Engineering, Yonsei University, Korea
- PO-05 “Secondary Reaction Zones in Coated Latest Ni-Base Blade Alloys”
Aya Suzuki, C. M. F. Rae
Rolls-Royce UTP, Department of Materials Science and Metallurgy, University of Cambridge, United Kingdom

- PO-06 “Incommensurate Structures of Intermediate Phase and Martensite Phase in Ni_2MnGa ”
Hiroaki Kushida¹, Kodai Fukuda¹, Tomoyuki Terai¹, Takashi Fukuda¹, Tomoyuki Kakeshita¹, Takuya Ohba², Toyotaka Osakabe³, Kazuhisa Kakurai³, Ken-ichi Kato⁴
¹*Division of Materials Manufacturing Science, Graduate School of Engineering, Osaka University;* ²*Department of Material Science, Shimane University;* ³*Quantum Beam Science Directorate, Japan Atomic Energy Agency (JAEA);* ⁴*Japan Synchrotron Radiation Research Institute*
- PO-07 “Crystallographical Characterization of Stress Corrosion Cracking Initiation on Type 316L Stainless Steel in High Temperature and High Pressure Water”
Tomo Saito, Hiroya Masaki, Fahmi Azhari Mukhlis, Shinji Fujimoto
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-08 “Microstructure and Mechanical Property of Electrodeposited Nanocrystalline Ni”
Daisuke Terada¹, Takayuki Hase¹, Tohru Yamazaki², Nobuhiro Tsuji¹
¹*Department of Adaptive Machine Systems, Graduate School of Engineering, Osaka University;* ²*Department of Materials Science and Chemistry, Graduate School of Engineering, University of Hyogo*
- PO-09 “Influence of Heat-Treatment on Microstructure and Plastic Deformation Behavior in Ni_3V Single Crystals with the D0_{22} Structure”
Koji Hagihara, Mayumi Mori, Takuya Kishimoto, Yukichi Umakoshi
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-10 “Martensitic Transformation Behavior in Sensitized SUS304 Austenitic Stainless Steel during Isothermal Holding at Low Temperature”
Jae-hwa Lee, Takashi Fukuda, Tomoyuki Kakeshita
Division of Materials Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-11 “Numerical Simulation of Transformation-Induced Microscopic Residual Stress in Ferrite-Martensite Lamellar Steel”
Yoshiki Mikami, Masahito Mochizuki, Masao Toyoda
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University

- PO-12 “Fabrication of Lotus-Type Porous Copper by Thermal Decomposition Method Using Titanium Hydride”
Takuya Ide, Hideo Nakajima
The Institute of Scientific and Industrial Research, Osaka University
- PO-13 “Fabrication of Lotus-Type Porous Magnesium through Thermal Decomposition Method”
Masakazu Tane, Hideo Nakajima
The Institute of Scientific and Industrial Research, Osaka University
- PO-14 “Fabrication of Lotus-Type Porous Al-Si Alloy by Continuous Casting with Using Thermal Decomposition Method”
Tae-Bum Kim, Shinsuke Suzuki, Hideo Nakajima
The Institute of Scientific and Industrial Research, Osaka University
- PO-15 “Fabrication of Lotus-Type Porous Al-Cu Alloys by Continuous Casting Technique”
Shinsuke Suzuki, Tae-Bum Kim, Hideo Nakajima
The Institute of Scientific and Industrial Research, Osaka University
- PO-16 “Fabrication of Lotus-Type Porous Aluminum Using Thermal Decomposition of Magnesium Hydroxide”
Jae-Soung Park, Hideo Nakajima
The Institute of Scientific and Industrial research, Osaka University
- PO-17 “Fabrication of Porous Magnesium Spinel with Cylindrical Pores by Unidirectional Solidification”
Shunkichi Ueno¹, Takashi Akatsu², Hideo Nakajima¹
¹*The Institute of Scientific and Industrial Research, Osaka University;* ²*Materials and Structure Laboratory, Tokyo Institute of Technology*
- PO-18 “Structure Change and Improvement of the Mechanical Properties of Lotus-Type Porous Copper by Wire-Brushing”
Juan. Lobos¹, S. Suzuki¹, H. Nakajima¹, Y. S. Ji², H. Fujii², D. Terada³, N. Tsuji³
¹*The Institute of Scientific and Industrial Research, Osaka University;* ²*Joining and Welding Research Institute Osaka University;* ³*Department of Adaptive Machine Systems, Graduate School of Engineering, Osaka University*

- PO-19 “Mechanical Property of Lotus-Type Porous Carbon Steel Fabricated by Continuous Casting Method”
Yuki Kawamura¹, Shinsuke Suzuki¹, Sang-Youl Kim¹, Hideo Nakajima¹, Makoto Kashihara², Hiroshi Yonetani²
¹*The Institute of Scientific and Industrial Research, Osaka University;* ²*Materials Laboratory, Mori Seiki*
- PO-20 “Prediction of Phase Separation in Multi-Component Oxide Glass for the Fabrication of Porous Glass Materials from Waste Slag”
Masanori Suzuki, Toshihiro Tanaka
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-21 “Fabrication of GDL Microporous Layer Using PVDF for PEMFCs”
Sung Bum Park, Sungjin Kim, Yong-Il Park, Myung-Hoon Oh
Department of Information and Nano Materials Engineering, Kumoh National Institute of Technology, Korea
- PO-22 “Single-Crystal Growth and Plastic Deformation Behavior of Ti-15Mo-5Zr-3Al Alloy for Biomedical Application”
Sang-hoon Lee, Koji Hagihara, Takayoshi Nakano
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-23 “Preferential Orientation of Biological Apatite in Normal and Osteoporotic Human Vertebral Trabeculae”
Sayaka Miyabe¹, Takuya Ishimoto¹, Naoki Takano², Taiji Adachi³, Takayoshi Nakano¹
¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University;* ²*Department of Mechanical Engineering, Keio University;*
³*Department of Mechanical Engineering and Science, Graduate School of Engineering, Kyoto University*
- PO-24 “Changes in Bone Microstructure and Toughness during Healing Process of Long Bone”
Takuya Ishimoto¹, Takayoshi Nakano¹, Yukichi Umakoshi¹, Yasuhiko Tabata²
¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University;* ²*Institute for Frontier Medical Sciences, Kyoto University*

- PO-25 “The Optimal Design of Implant for Improving Bone Quality in the Implant Surroundings Based on Stress Analysis”
Yoshihiro Noyama¹, Noriyuki Nagayama², Koichi Kuramoto¹, Takayoshi Nakano³
¹*Nakashima Medical Division, Nakashima Propeller Co., Ltd.*; ²*Department of Mechanical Engineering, Industrial Technology Center of Okayama Prefecture*;
³*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University*
- PO-26 “Preparation of Visible Light Responsive Hydrophobic TiO₂ Photocatalysts under Hydrothermal Conditions and Their Applications for Degradation of Organic Pollutants in Water”
Takashi Kamegawa, Kazuaki Sugimura, Keiichi Maki, Kohsuke Mori, Hiromi Yamashita
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-27 “Preparation of Nanosized Metal and Alloy Particles on Single-Site Photocatalyst Using Photo-Assisted Deposition Method”
Sayoko Shironita, Takashi Kamegawa, Kohsuke Mori, Hiromi Yamashita
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-28 “Luminescence Properties of Eu-Implanted GaN-Based Semiconductors”
Hitoshi Kasai, Atsushi Nishikawa, Yoshikazu Terai, Yasufumi Fujiwara
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-29 “Formation and Microstructure of Al₂O₃-YAG Eutectic Ceramics by Phase Transformation from Metastable System to Equilibrium System”
Tomoya Nagira¹, Hideyuki Yasuda¹, Masato Yoshiya¹, Kentarou Uesugi²
¹*Department of Adaptive Machine Systems, Graduate School of Engineering, Osaka University*; ²*Japan Synchrotron Radiation Research Institute*

- PO-30 “Photoluminescence of CuInS₂-Based Semiconductor Quantum Dots; Its Origin and the Effect of ZnS Coating”
Katsuhiro Nose¹, Naoya Fujita¹, Takahisa Omata¹, Shinya Otsuka-Yao-Matsuo¹, Wataru Kato², Masato Uehara³, Hiroyuki Nakamura³, Hideaki Maeda^{2,3}, Hayato Kamioka⁴, Hideo Hosono^{4,5}
¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University;* ²*Department of Molecular and Material Sciences, Interdisciplinary Graduate School of Engineering Science, Kyusyu University;* ³*Nanotechnology Research Institute, National Institute of Advanced Industrial Science and Technology (AIST);* ⁴*Transparent Electro-Active Materials Project, ERATO-SORST, JST;* ⁵*Materials and Structures Laboratory and Frontier Collaborative Research Center, Tokyo Institute of Technology*
- PO-31 “Multiferroic Materials: BiMnO₃ and BiCrO₃”
Alexei Belik, Eiji Takayama-Muromachi
World Premier International Center for Materials Nanoarchitectonics, National Institute for Materials Science
- PO-32 “Magnetic Properties of Mn-Zn Ferrite Thin Films Fabricated by Pulsed Laser Deposition”
Hideki Etoh^{1,2}, Junichi Sato², Yoshiteru Murakami², Akira Takahashi², Ryoichi Nakatani¹
¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University;* ²*Advanced Technology Research Laboratories Corporate Research and Development Group, Sharp Corporation*
- PO-33 “Influence of Magnetic Field on Microstructure Formation in L1₀-Type Ferromagnetic Intermetallics”
Sahar Farjami, Takashi Fukuda, Tomoyuki Kakeshita
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-34 “Development of A Magnetic Force Microscopy for Magnetically Soft Materials”
Hikaru Nomura, Daisuke Yokota, Ryoichi Nakatani
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University

- PO-35 “Difference of Structure and Magnetic Behavior of Mn-AlN Films Due to Substrate Materials”
Takanobu Sato¹, Yasushi Endo², Fumiyoshi Kirino³, Ryoichi Nakatani¹
¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University;* ²*Department of Electrical and Communication Engineering, Graduate School of Engineering, Tohoku University;* ³*Conservation of Cultural Property, Graduate School of Fine Arts, Tokyo National University of Fine Arts and Music*
- PO-36 “Investigation of Quadrupolar Interaction in DyCu”
Motoyoshi Yasui¹, Tomoyuki Terai¹, Tomoyuki Kakeshita¹, Masayuki Hagiwara²
¹*Division of Materials Manufacturing Science, Osaka University;* ²*KYOKUGEN, Osaka University*
- PO-37 “Electrochemical Formation of Dy Alloy Films in a Molten LiCl-KCl-DyCl₃ System”
Hirokazu Konishi¹, Toshiyuki Nohira², Yasuhiko Ito³
¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University;* ²*Department of Fundamental Energy Science, Graduate School of Energy Science, Kyoto University;* ³*Department of Environmental Systems Science, Graduate School of Engineering, Doshisha University*
- PO-38 “A Model for Nucleation of Tin Whisker through Dislocation Behavior”
Kiyomichi Nakai¹, Tatsuaki Sakamoto¹, Sengo Kobayashi¹, Tomohide Nishikawa¹, Masao Takamizawa², Koji Murakami³, Makoto Hino³
¹*Department of Materials Science and Biotechnology, Graduate School of Science and Engineering, Ehime University;* ²*OM Sangyo Co. Ltd;* ³*Industrial Technology Center of Okayama Prefecture*
- PO-39 “Anomalies in Physical Properties and Diffuse Scatterings in Iron-Doped Ti-Pd Shape Memory Alloys”
Mitsuharu Todai, Takashi Fukuda, Tomoyuki Kakeshita
Division of Materials Manufacturing Science, Graduate School of Engineering, Osaka University

- PO-40 “Cu-Added Zr-Ce-Sn-Pr-O Mixed Oxide Phases with High Oxygen Storage Capacity”
Tadatosi Murota, Kosuke Sogawa, Shinya Otsuka-Yao-Matsuo, Takahisa Omata
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-41 “Grain Size Effect on Martensitic Transformation Behavior in Fe-Ni Invar Alloys”
Yoshikazu Aikawa¹, Tomoyuki Terai², Tomoyuki Kakeshita²
¹*Metal Powder Manufacturing & Sales Department, Sanyo Special Steel CO., LTD.;*
²*Division of Materials Manufacturing Science, Graduate School of Engineering, Osaka University*
- PO-42 “Tuning Electrical Transport Properties of ZnO/Si Diodes”
Mingsheng Xu¹, Daisuke Fujita²
¹*International Center for Young Scientists - Interdisciplinary Materials Research, National Institute for Materials Science;* ²*Advanced Nano Characterization Center and International Center for Materials Nanoarchitectonics, National Institute for Materials Science*
- PO-43 “Morphology Change of Core-Shell Type Metal Nanoparticles through Heat Treatment”
Kota Taniguchi, Ryusuke Nakamura, Hideo Nakajima
The Institute of Scientific and Industrial Research, Osaka University
- PO-44 “Fabrication of Core-Shell FePt@Ti-containing Silica as a Spherical Nanocatalyst”
Kohsuke Mori, Kohei Sugihara, Yuichi Kondo, Hiromi Yamashita
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-45 “Structural Stability of Hollow Oxide Nanoparticles at High Temperatures”
Ryusuke Nakamura, Hideo Nakajima
The Institute of Scientific and Industrial Research, Osaka University
- PO-46 “One-Dimensional (1D) Semiconductor ZnS Nanostructures - Novel Functional Materials”
Xiaosheng Fang, Yoshio Bando, Dmitri Golberg
World Premier International Center for Materials Nanoarchitectonics, National Institute for Materials Science

- PO-47 “UV-O₃ Cleaning of Chemisorbed Organic Molecules on the Surfaces of ZrO₂- and CeO₂-Based Nanocrystals”
Yuji Goto, Kazuyuki Takahashi, Takahisa Omata, Shinya Otsuka-Yao-Matsuo
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-48 “Frozen-In Vacancies in PVD-Cu Films with Improved High-Pressure Reflowability Studied Using a Slow Positron Beam”
Atsushi Yabuuchi¹, Daichi Kubo¹, Masataka Mizuno^{1,2}, Hideki Araki^{1,2}, Takashi Onishi³, Yasuharu Shirai⁴
¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University;* ²*Center for Atomic and Molecular Technologies, Graduate School of Engineering, Osaka University;* ³*Materials Research Laboratory, Kobe Steel Ltd.* ⁴*Department of Materials Science and Engineering, Graduate School of Engineering, Kyoto University*
- PO-49 “Metalorganic Chemical Vapor Deposition of Er-Doped ZnO Thin Films with 1.54 μm Photoluminescence”
Keisuke Yamaoka¹, Yoshikazu Terai¹, Takashi Yamaguchi¹, Ha Ngoc Ngo², Tom Gregorkiewicz², Yasufumi Fujiwara¹
¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University;* ²*Van der Waals-Zeeman Institute, University of Amsterdam, The Netherlands*
- PO-50 “Effects of Static Magnetic Field and Gas Atmosphere on Solidification of Silicon by Electromagnetic Levitation”
Shunkichi Ueno¹, Hidekazu Kobatake², Hiroyuki Fukuyama², Satoshi Awaji³, Hideo Nakajima¹
¹*The Institute of Scientific and Industrial Research, Osaka University;* ²*Institute of Multidisciplinary Research for Advanced Materials, Tohoku University;* ³*Institute for Materials Research, Tohoku University*
- PO-51 “Photoreflectance Study of β-FeSi₂ Epitaxial Films Grown by Molecular Beam Epitaxy”
Yoshikazu Terai, Keiichi Noda, Syoutaro Hashimoto, Yasufumi Fujiwara
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University

PO-52 “Low-Temperature Growth of GaAs with High Quality by Metalorganic Vapor Phase Epitaxy”

Harunori Sakaguchi¹, Tomoyoshi Mishima¹, Takeshi Meguro², Yohei Otoki²

¹*Research and Development Laboratory, Hitachi Cable, Ltd.*; ²*Takasago Works, Hitachi Cable, Ltd.*

PO-53 “Electrolytic Processing of MgO Coatings”

Raed Hashaikeh, Jerzy A. Szpunar

Department of Materials Engineering, McGill University, Canada

PO-54 “Tribo-Electrochemical Method and Apparatus for Characterization of Synergy between Wear and Corrosion Processes”

Marwan Azzi^{1,2}, Jerzy A. Szpunar¹

¹*Department of Materials Engineering, McGill University*; ²*Department of Engineering Physics, Ecole Polytechnique, Canada*

PO-55 “Synthesis of Nonequilibrium Materials Using Shock Wave”

Tomokazu Sano¹, Masashi Tsujino¹, Tomoyuki Terai¹, Tomoyuki Kakeshita¹, Akio Hirose¹, Norimasa Ozaki², Tomoaki Kimura², Kohei Miyanishi², Takashi Endo², Tatsuya Jitsui², Ryosuke Kodama^{2,3}, Kazuto Arakawa⁴, Hirotarō Mori⁴, Tsutomu Mashimo⁵, Toshimori Sekine⁶, Osami Sakata⁷, Masayuki Okoshi⁸, Narumi Inoue⁸, Thibaut de Ressaiguer⁹

¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University*; ²*Division of Electrical, Electronic and Information Engineering, Graduate School of Engineering, Osaka University*; ³*Institute of Laser Engineering, Osaka University*; ⁴*Research Center for Ultra-High Voltage Electron Microscopy, Osaka University*; ⁵*Shock Wave and Condensed Matter Research Center, Kumamoto University*; ⁶*National Institute for Materials Science*; ⁷*Japan Synchrotron Radiation Research Institute*; ⁸*National Defense Academy of Japan*; ⁹*Laboratoire de Combustion et de Detonique, ENSMA, France*

PO-56 “Movement of Solder Fillers due to Unevenness of Interfacial Tension in Self-Organization Assembly Process”

Koushi Ohta, Kiyokazu Yasuda, Michiya Matsushima, Kozo Fujimoto

Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University

- PO-57 “Role of Underlayer for Segregated Structure Formation of CoCrPt-SiO₂ Film”
Yoshiyuki Hirayama¹, Ichiro Tamai¹, Ikuko Takekuma¹, Ryoichi Nakatani²
¹*Central Research Laboratory, Hitachi, Ltd.*; ²*Center for Atomic and Molecular Technologies, Graduate School of Engineering, Osaka University*
- PO-58 “Transition of Rate-Controlling Process for Reactive Diffusion between Ta and Bronze in Superconductor”
Masanori Kajihara, Yuta Tejima
Department of Materials Science and Engineering, Tokyo Institute of Technology
- PO-59 “Friction Stir Welding of Zr Based Bulk Metallic Glass”
Young Su Ji¹, Hidetoshi Fujii¹, Kazuhiro Nakata¹, Kiyoshi Nogi¹, Hisahichi Kimura², Akihisa Inoue²
¹*Joining and welding Research Institute, Osaka University*; ²*Institute for Materials Research, Tohoku University*
- PO-60 “Evaluation of Interfacial Microstructures in Dissimilar Joints of Aluminum Alloys to Steel Using Nanoindentation Technique”
Tomo Ogura, Yuichi Saito, Keisuke Ueda, Akio Hirose
Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University
- PO-61 “Silica-Based Diffractive-Refractive Hybrid Lenses Fabricated by Femtosecond Laser Lithography”
Mizue Mizoshiri¹, Hiroaki Nishiyama¹, Junji Nishii², Yoshinori Hirata¹
¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University*; ²*National Institute of Advanced Industrial Science Technology*
- PO-62 “Periodic Porous Structures in GeO₂-B₂O₃-SiO₂ Glass Films Fabricated Using Ultraviolet Laser Pulses”
Hiroaki Nishiyama¹, Junji Nishii², Yoshinori Hirata¹
¹*Division of Materials and Manufacturing Science, Graduate School of Engineering, Osaka University*; ²*National Institute of Advanced Industrial Science Technology*