

MO	Session M, Room 103, June 22 (Sat) PM
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Session M: GIGAKU and Material Design

- 14:00-15:05** **Materials Design Session I** (Chairperson: Prof. Shigeharu Kamado)
- MO-1 “Design of Morphology and Orientation of Crystals by Laser Irradiation in Glasses”
T. Komatsu, T. Honma (NUT, Japan)
- MO-2 “Structural Functionalism: 花より団子” (Invited: 25 min)
S.R. Hall (University of Bristol, UK)
- MO-3 “Design and Synthesis of Single Liquid Crystal Polymer with Linearly Polarized White Luminescence” (Invited: 25 min)
Z. Tianyuan^{1,2}, W. Kun², S. Zheng¹, T. Kobayashi² (¹Zhengzhou University, China, ²NUT, Japan)
- 15:05~15:15** **Coffee Break**
- 15:15~16:10** **Materials Design Session II** (Chairperson: Associate Prof. Takashi Kikuchi)
- MO-4 “Electronic Approach to Alloy Design” (Invited: 25 min)
M. Morinaga (Toyota Physical & Chemical Research Institute, Japan)
- MO-5 “Fluid Control MEMS Constructed with Functional Polymer Materials”
A. Kawai (NUT, Japan)
- MO-6 “The Singular Point Control in Hybrid Materials by Nanopulsed Power”
T. Nakayama, J.W. Lee, H.B. Cho, T. Fujihara, T. Suzuki, H. Suematsu, K. Niihara (NUT, Japan)
- 16:10~16:20** **Coffee Break**

16:20~17:00 **Materials Design Session III** (Chairperson: Associate Prof. Yukio Miyashita)

MO-7 “High Strength Magnesium Alloys Strengthened by Long Period Stacking Ordered Structure” (Invited: 25 min)

Y. Kawamura (Magnesium Research Center, Kumamoto University, Japan)

MO-8 “Effect of Age Hardening on Creep Properties in Die-cast AX91D Alloys Containing Ca”

T. Homma¹, K. Ohta¹, S. Saikawa², K. Sakakibara³, S. Takeda³, S. Kamado¹,
(¹NUT, Japan, ²University of Toyama, Japan, ³Ahresty Corporation, Japan)

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Session M: GIGAKU and Material Design

9:00~10:15 **Materials Design Session IV** (Chairperson: Associate Prof. Takao Tsurui)

MO-9 “Self-healing of Nano-Ni/Al₂O₃ Hybrid Materials via High-temperature Oxidation”

M. Nanko (NUT, Japan)

MO-10 “Control of Large Defects in Dense Alumina Ceramics by Characteristics of Granules”

S. Tanaka, S. Goi, Z. Kato, K. Uematsu (NUT, Japan)

MO-11 “Electrical and Optical Characteristics of Cu₂O Thin Film Prepared by Electric Current Heating Using Copper Wire”

K. Yamazaki¹, T. Okamoto¹, Y. Kuroki¹, M. Takata^{1,2} (¹NUT, Japan, ²Japan Fine Ceramics Center, Japan)

MO-12 “Bi-substituted Iron Garnet on Glass Substrate Prepared by Metal-organic Decomposition Method”

T. Ishibashi¹, T. Yoshida¹, T. Nishi² (¹NUT, Japan, ²Kobe City College of Technology, Japan)

The 2nd International GIGAKU Conference in Nagaoka

- MO-13 “Synthesis of $C_xSr_2Ca_2Cu_3O_y$ Superconductor under Atmospheric Pressure by Insertion of C between SrO Double Layers in $Sr_2Ca_2Cu_3O_y$ ”
H. Suematsu, T. Aoba, T. Suzuki, T. Nakayama, K. Niihara (NUT, Japan)
- 10:15~10:25 Coffee Break**
- 10:25~11:40 Materials Design Session V** (Chairperson: Prof. Takayuki Komatsu)
- MO-14 “Fabrication and Characterization of a Magneto-optical Light Modulator Driven by Spin Transfer Switching for Holography 3D Display Application” (Invited: 25 min)
K. Aoshima¹, K. Machida¹, D. Kato¹, H. Kinjou¹, K. Kuga¹, H. Kikuchi¹, N. Shimidzu¹, K. Wada², T. Ishibashi² (¹Japan Broadcasting Corporation, Japan, ²NUT, Japan)
- MO-15 “Development of Mechanically Biocompatible Titanium Alloys for Fabricating Biomedical Implants” (Invited: 25 min)
M. Niinomi, M. Nakai, J. Hieda, K. Cho (Institute for Materials Research, Tohoku University, Japan)
- MO-16 “Mechanical Deformation and Nano-structure of Glass” (Invited: 25 min)
S. Ito (Tokyo Institute of Technology, Japan)
- 11:40~12:40 Lunch**

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- 12:40~13:50** **Materials Design Session VI** (Chairperson: Prof. Hideo Koguchi)
- MO-17 “Low Temperature Synthesis and Luminescent Properties of Sr₂Si₅N₈ Phosphor”
M. Yokozeki¹, Y. Kuroki¹, T. Okamoto¹, M. Takata^{1,2}, N. Togashi³, M. Kawahara³, T. Shibata³ (¹NUT, Japan, ²Japan Fine Ceramics Center, Japan, ³Kojundo Chemical Laboratory CO., LTD, Japan)
- MO-18 “Sodium Iron Phosphate Glass-ceramics for Sodium Ion Batteries”
T. Honma, A. Sato, T. Togashi, T. Komatsu (NUT, Japan)
- MO-19 “Selective Functionalization of Boron Nitride Nanosheets for Thermal Conducting Polymer Nanocomposites”
H.B. Cho, T. Nakayama, H. Suematsu, T. Suzuki, W. Jiang, K. Niihara (NUT Japan)
- MO-20 “Neutron and X-ray Diffraction of Difficult Samples at the Institute of Materials Engineering, ANSTO” (Invited: 25 min)
G.J. Thorogood (Australia Nuclear Science and Technology Organisation, Australia)
- 13:50~14:00** **Coffee Break**
- 14:00~15:00** **Materials Design Session VII** (Chairperson: Associate Prof. Hiroo Taura)
- MO-21 “Luminescence of Activator-doped Alunite Synthesized under Hydrothermal Condition”
S. Kimura¹, Y. Kuroki¹, T. Okamoto¹, M. Takata^{1,2} (¹NUT, Japan, ²Japan Fine Ceramics Center, Japan)

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- MO-22 “Relationship Between Microstructure and Properties of Oxygen Sensor Exploiting Hot Spot in $\text{GdBa}_2\text{Cu}_3\text{O}_{7-\delta}$ Rod Prepared Using Graphite as Pore-forming Agent”
H. Uchiyama¹, T. Okamoto¹, Y. Kuroki¹, M. Takata^{1,2} (¹(NUT, Japan, ²Japan Fine Ceramics Center, Japan)
- MO-23 “The Maximum Adhesion Force of the Anisotropic Materials”
T. Hayashi, H. Koguchi (NUT, Japan)
- MO-24 “Effect of Overlapped Clearance on Out-of-plane Cutting Characteristics of White-coated Paperboard Subjected to Straight Punch/die Shearing”
P. Mitsomwang, S. Nagasawa (NUT, Japan)
- 15:00** **Closing Remarks**

POSTER M June 22 (Sat), 12:00 ~ 14:00

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- MP-1: “Effect of Mechanical Stress on Electrolyte Film for Flexible Sheet Type Direct Methanol Fuel Cell”
Y. Sakurai, A. Kawai (NUT, Japan)
- MP-2: “Preparation of Cytocompatible Chitosan/Silica Composite Monoliths”
M. Tagaya, T. Ikarashi, T. Kobayashi (NUT, Japan)
- MP-3: “Hydrothermal Synthesis and Luminescence Properties of Eu³⁺ Doped ZnO”
T.X. Anh¹, D.T.T. Mai¹, D.Q. Trung², P.T. Huy² (¹Hanoi University of Technology, Vietnam, ²Advanced Institute for Science and Technology, Hanoi University of Technology, Vietnam)
- MP-4: “Direct Observation of Particle Fluidity in Slurry with Various Solid Loadings”
Y. Nagasawa, Z. Kato, K. Uematsu, S. Tanaka (NUT, Japan)
- MP-5: “Strength and Fracture Behavior of FSSWed PVC Joint Applied Material Modification at the Welded Area with SiC Particles”
Y. Kurabe, Y. Miyashita, H. Hori (NUT, Japan)
- MP-6: “Study on Generation and Measurement Methods for Analysis on Solid-Plasma Transition Process”
T. Kikuchi¹, T. Sasaki¹, Y. Miki¹, F. Tachinami¹, H. Saito¹, R. Hayashi¹, N. Anzai¹, T. Takahashi¹, T. Aso¹, K. Takahashi¹, N. Harada¹, W. Jiang¹, K. Kashine², A. Tokuchi¹ (¹NUT, Japan, ²Yuge National College of Maritime Technology, Japan)
- MP-7: “Synthesis and Characterization of Organic-inorganic Hybrid Phosphor Made from Malic Acid and APTES”
T. Kawase, A. Kato (NUT, Japan)
- MP-8: “Annealing Effect of Sputter-deposited GaN Thin Films”
T. Shibata¹, S. Aoto¹, H. Toyota², S. Saito¹, N. Uchitomi¹ (¹NUT, Japan, ²Toshiba R&D Center, Japan)

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- MP-9: “Low-temperature Growth of InAlAs and InGaAs Layers on Ferromagnetic ZnSnAs₂:Mn Thin Films”
T. Uchiyama, H. Oomae, H. Toyota, N. Uchitomi (NUT, Japan)
- MP-10: “Synthesis of Phosphorous Y₂WO₆:Eu Nanorods Using Flux Method”
D. Imai, A. Kato (NUT, Japan)
- MP-11: “A SU-8 Photoresist Film as Electrical Stable Layer in Liquid Environment”
Y. Noguchi, A. Kawai (NUT, Japan)
- MP-12: “Photoresponse of Microphase Separation of Liquid Crystalline Block Copolymers”
T. Okazawa, H. Takeshita, R. Kudo, K. Haginoya, M. Miya, K. Takenaka, T. Shiomi (NUT, Japan)
- MP-13: “Synthesis, Crystal Structure and Electrical Properties of TTF Derivatives Containing Fluoromethyl Group”
T. Ito, S. Monden, Y. Shiga, T. Imakubo (NUT, Japan)
- MP-14: “Rheological Properties of Natural Rubber with Nanomatrix Structure”
K. Kosugi, S. Kawahara (NUT, Japan)
- MP-15: “De-Contamination of Radioactive Cesium in Natural Environment Fukushima by Using Zeolite-Polymer Composite Fiber”
M. Ohshiro^{1,3}, S. Uchida², T. Kobayashi¹ (¹NUT, Japan, Fukushima National College of Technology, Japan, Kasai Corporation, Japan)
- MP-16: “Regeneration of Sugarcane Bagasse into Cellulose Hydrogel Films and its Application for Biomedical Uses”
K. Nakasone¹, K. Tovar¹, S. Ikematsu², T. Kobayashi¹ (¹NUT, Japan, ²Okinawa National College of Technology)
- MP-17: “Synthesis and its Structural Behavior of TiO₂ Particles Synthesized from Ti•EDTA•NH₄ Complex”
K. Komatsu¹, Y. Hasebe¹, T. Sekiya¹, A. Nakamura^{1,2}, S. Ohshio¹, H. Akasaka¹, I. Toda¹, H. Saitoh¹ (¹NUT, Japan, ²Chubu Chelest Co. Ltd., Japan)

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- MP-18: “Amorphous Hydrogenated Carbon Films Deposited with Benzene by Plasma Enhanced Chemical Vapor Deposition”
X.L. Zhou, I. Toda, H. Muramatsu, S. Ohshio, H. Saitoh (NUT, Japan)
- MP-19: “Adsorption of Carbon Dioxide on Activated Carbon Fabricated with Lignin”
I. Toda, T. Tsuchiya, H. Toda, T. Yamada, S. Ohshio, H. Muramatsu, H. Saitoh (NUT, Japan)
- MP-20: “Adsorption of CH₄ and CO₂ on Activated Carbon Fabricated with Rice Husk”
I. Toda¹, T. Tsuchiya¹, H. Toda¹, T. Yamada¹, S. Ohshio¹, K. Inaba², H. Muramatsu¹, H. Saitoh¹ (¹NUT, Japan, ²JAPEX, Japan)
- MP-21: “Development of High-speed-extrudable Dilute Mg-Al-Ca-Mn Alloy with High Strength”
T. Nakata, S. Kamado (NUT, Japan)
- MP-22: “Microstructural and Mechanical Characterization of TiN_{1-x} Fabricated by Pulsed Electric Current Sintering”
S. Suarez, M. Nanko (NUT, Japan)
- MP-23: “Structural Inhomogeneities in CuI-Cu₂MoO₄ Superionic Conducting Glass Analyzed by TEM”
T. Tsurui (NUT, Japan)
- MP-24: “Study on Stress Singularity Field for Dissimilar Material Joints based on 3D Element Free Galerkin Method (Relationship Between Radius of Curvature at Vertex and Intensity of Stress Singularity Field Near Cross Point and Free Surface)”
T. Kurahashi¹, Y. Tsukada², H. Koguchi² (¹Nagaoka National College of Technology, Japan, ²NUT, Japan)