ORAL SESSION PROGRAM *(tentative, 08 Sep. 2010)*

TOKYO SYMPOSIUM

Tuesday, 28 September

Opening Remarks

Prof. Toshikuni Kaino (Honorary Chair, ISAOP-10/ISSM-1, Tohoku University, Japan)

Prof. Tadafumi Adschiri (Chair Person, ISAOP-10/ISSM-1, Tohoku University, Japan)

Plenary Lecture

Chairperson: Prof. T. Kaino (Tohoku University)

Microoptical Systems – Challenges for Materials Science

Andreas Bräuer

Fraunhofer Institute Applied Optics and Precision Engineering Jena, Germany

Special Lecture

Chairperson: Prof. T. Kaino (Tohoku University)

NEDO Project "Super Hybrid Materials" Challenge for Incompatible Multi-Functions

Tadafumi Adschiri

WPI Advanced Institute for Materials Research, Tohoku University, Japan

Session-A 13:00-15:10

Chairperson: Prof. S. Ando (Tokyo Institute of Technology)

A-1 **High Thermal Conductive Epoxy Resin Composites with Controlled Higher Order Structures**

Yoshitaka Takezawa

Tsukuba Research Laboratory, Hitachi Chemical Co., Ltd., Japan

A-2 **Development of Thermally Stable Si-Based Hybrid Materials for Semiconductor Packaging Applications**

Takuya Ogawa

Business and Technology Incubator, Dow Corning Toray Co., Ltd., Japan

A-3 **Thermal Conductivity and Moldability of Composites with Thermal Conductive Fillers**

H. Kiritani, A. Fujita, Y. Matsushita and M. Yamazaki

Mitsubishi Chemical Corporation, R&D Center, Japan

A-4 **Thermally Conductive Composite Films of Hexagonal Boron Nitride and Polyimide**

Kimiyasu Sato, Yuji Hotta and Koji Watari

National Institute of Advanced Industrial Science and Technology (AIST), Japan

A-5 **Thermal Conductivity of Phase Separated Polyimide Blend Films Having Vertical Double Percolation Structure Containing ZnO Nano-Pyramidal Particles**

Daisuke Yorifuji, and Shinji Ando

Dept.Chemistry & Materials Science, Tokyo Institute of Technology, Japan

Session-B 15:35-17:45

Chairperson: Dr. A. Braeuer (Fraunhofer)

B-1 **Inorganic-Organic Hybrid Polymers, ORMOCER®s, for Optic, Electronic and Photonic Applications**

Michael Popall

Fraunhofer Institute for Silicate Research – ISC, Germany

B-2 **Loss Limit and the Future of EO-Polymers**

Toshikuini Kaino and Okihiro Sugihara

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

B-3 **Single-Mode Optical Circuits by Light-Induced Self-Written Technology**

Masahiro Tomiki[1], Hiroki Watanabe[1], Hajime Sakata[1], Akari Kawasaki[2], Tatsuya Yamashita[2], and Manabu Kagami[2]

[1] Faculty of Engineering, Shizuoka University, [2] Toyota Central R&D Labs., Inc., Japan

B-4 **Polymer Optical Waveguide Using Addition Polymerized Norbornene**

Tetsuya Mori, Keizo Takahama, Hiromi Oki, Makoto Fujiwara, Kei Watanabe, Hiroshi Owari, Shinsuke Terada, Mariko Sakamoto and Koji Choki

Sumitomo Bakelite Co., Ltd., COIN Project Team, Japan

Wednesday, 29 September

Session-C 9:00-12:25

Chairperson: Prof. S. Kobayashi (Chitose Institute of Science and Technology)

C-1 **Organic-Inorganic Hybrid Materials for Photodetection and Photovoltaics**

Kwang-Sup Lee[1], Kyung Kook Jang[1], Prabhakaran Prem[1], Eun Young Park[1]
Won Jin Kim[2], Jangwon Seo[2], Alex N. Cartwright,[2] Paras N. Prasad[2]
[1]Department of Advanced Materials, Hannam University, Korea
[2]Institute for Lasers, Photonics and Biophotonics, University at Buffalo, USA

C-2 **The Role and the Properties of Organic and Inorganic Transparent Conducting Films for Organic and Hybrid Solar Cells**

Mihaela Girtan
Photonics Laboratory, Angers University, France

C-3 **Evolution of Nanostructures and Nanomorphology in Polymer:Fullerene Solar Cells**

Youngkyoo Kim
Organic Nanoelectronics Laboratory, Department of Chemical Engineering, Kyungpook National University, Korea

Chairperson: Dr. M. Girtan (Angers University)

C-4 **Photonics Polymers for Next Generation Optical Interconnection Technology**

Okihiro Sugihara and Toshikuni Kaino
Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan

C-5 **Development of High Refractive Index Organic-Inorganic Hybrid**

Kimihiro Matsukawa
Electronic Material Research Division, Osaka Municipal Technical Research Institute, Japan

C-6 **Novel High Refractive Index Positive-Tone Photo Sensitive Polyimide-Titania Nano Composite for Micro-lens of Image Sensors**

Masao Tomikawa and Mitsuhito Suwa
Electronic & Imaging Materials Research Laboratories, Toray Industries, Inc., Japan

C-7 **Transparent High Temperature Polymers and Their Optical and Electrical Applications**

Myeon-Cheon Choi[1], Shinji Ando[2], and Chang-Sik Ha[1]
[1] Department of Polymer Science and Engineering, Pusan National University, Korea,
[2] Department of Chemistry & Materials Science, Tokyo Institute of Technology, Japan

Session-D 13:25-17:15

Chairperson: Prof. T. Ishizone (Tokyo Institute of Technology)

D-1 **Progress in Highly Thermal-Conductive Polymer Composites and Hybrids**

Yasuyuki Agari

Osaka Municipal Technical Research Institute, Japan

D-2 **High Thermal Conductivity Obtained by Boron Nitride-filled Polybenzoxazine**

Sarawut Rimdusit[1], Hatsuo Ishida[2], and Chanchira Jubsilp[3]

[1] Department of Chemical Engineering, Faculty of Engineering, Chulalongkorn University, Thailand

[2] Department of Macromolecular Science, Case Western Reserve University, USA

[3] Department of Chemical Engineering, Faculty of Engineering, Srinakharinwirot University, Thailand

D-3 **Development of Self-Assembling Epoxy Monomers For Highly Thermal Conductive Thermosets**

Teruaki Hayakawa[1], Rina Maeda[1], So Kodama[1], Masa-aki Kakimoto[1], Hiroaki Urushibata[1], Shinya Tokizaki[2], Naoki Yasuda[2], Hideharu Nobutoki[2]

[1] Department of Organic and Polymeric Materials, Tokyo Institute of Technology, Japan

[2] Advanced Technology R&D Center, Mitsubishi Electronic Corporation, Japan

D-4 **Molecular Dynamics Studies on Thermal Conductivity of Polymers**

Hideharu Nobutoki[1], Shinya Tokizaki[1], Teruaki Hayakawa[2], Rina Maeda[2], and Masa-aki Kakimoto[2]

[1] Advanced Technology R&D Center, Mitsubishi Electric Corporation, Japan

[2] Department of Organic and Polymeric Materials, Tokyo Institute of Technology, Japan

Chairperson: Prof. T. Hayakawa (Tokyo Institute of Technology)

D-5 **Orientation of BN Nanosheets in Polysilocane/BN Composite Films Using a Nanosec Pulsed Electric Field and High Magnetic Field**

Tadachika Nakayama[1], Hong-Baek Cho[1], Satoshi Tanaka[2], Tsuneo Suzuki[1], Weihua Jiang[1], Hisayuki Suematsu[1], Koichi Niihara[1], Kenji Miyata[3], Tadafumi Adschiri[4]

[1] Dept. of Electric Eng., Nagaoka Univ. of Technology, Japan

[2] Dept. of Chemical Eng., Nagaoka Univ. of Technology, Japan

[3] Japan Chem. Innovation Institute and Denki Kagaku Kogyo Co. Ltd., Japan

[4] IMRAM, Tohoku Univ., Japan

D-6 **Liquid-Crystalline Organic-Inorganic Hybrid Dendrimers: Self-Organized Structures of Dendron-Modified Gold Nanoshperes**

Kiyoshi Kanie[1], Masaki Matsubara[1], Xiangbing Zeng[2], Feng Liu[2], Goran Ungar[2], and Atsushi Muramatsu[1]

[1] *Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan*

[2] *Department of Engineering Materials, University of Sheffield, UK*

D-7 **Dispersion of surface-modified nanoparticles in hydrophobic media by controlling surface, size and size distribution of nanoparticles**

Toshihiko Arita[1], and Tadafumi Adschiri[2]

[1] *Institute of Multidisciplinary Research for Advanced Materials, Tohoku University, Japan*

[2] *WPI research Center, Advanced Institute for Materials Research, Tohoku University, Japan*

D-8 **Fabrication and Characterization of Shape-Controlled Hybridized Fullerene Fine Crystals**

Akito Masuhara, and Masataka Ikeshima

Department of Science and Engineering, Yamagata University, Japan

Thursday, 30 September

Session-E 9:00-11:20

Chairperson: Prof. O. Sugihara (Tohoku University)

E-1 **Optical Control in Photonic Devices by Photo-Isomerization**

Jeong Weon Wu

Dept. of Physics and Quantum Metamaterials Research Center, Ewha Womans University, Korea

E-2 **Oriented Thin Films of Thiophene Polymers and Oligomers**

Nobutaka Tanigaki[1], Toshiko Mizokuro[1], Claire Heck[1], Chikayo Takechi[1], Shuichi Nagamatsu[2] and Yuji Yoshida[3]

[1] *National Institute of Advanced Industrial Science and Technology (AIST), Japan*

[2] *Department of Compute Science and Electronics, Kyushu Institute of Technology, Japan*

[3] *National Institute of Advanced Industrial Science and Technology (AIST), Japan*

E-3 **Light-Induced Self-Written Optical Waveguides: Features and Applications**

Manabu Kagami, Tatsuya Yamashita, Akari Kawasaki, Masatoshi Yonemura

Toyota Central R&D Laboratories Inc., Japan

E-4 **Poly(alkylfluorene) Based Polymeric Light Emitting Diodes and Photodetectors for Optical Circuits**

Yutaka Ohmori, Hirotake Kajii, Toshinari Kojima, and Daisuke Kasama

Osaka University, Center for Advanced Science and Innovation, Japan

E-5 **Wavelength Tuning with Polysilane Waveguide Bragg Grating**

Soichi Kobayashi

Chitose Institute of Science and Technology, Japan

Closing Remarks for Tokyo Symposium

Prof. S. Ando (Chair Person, ISAOP-10/ISSM-1, Tokyo Institute of Technology)

SENDAI SYMPOSIUM

Thursday, 30 September

NEDO-JCII Hyper-Hybrid Project Research Laboratory & IMRAM Tour

Friday, 1 October

Opening Remarks

Prof. Akihisa Inoue (President, Tohoku University, Japan)

Prof. Yoshinori Yamamoto (WPI Center Director, Tohoku University, Japan)

Prof. Junichi Kawamura (IMRAM Director, Tohoku University, Japan)

NEDO Project "Super Hybrid Materials" Challenge for Incompatible Multi-functions in JCII

Tadafumi Adschiri

WPI Advanced Institute for Materials Research, Tohoku University, Japan

Session-F 11:00-15:50

Chairperson:

F-1 **Self-assembly in an ABC-type Triblock Terpolymer**

Hiroshi Jinnai[1,2], H. Sugimori[1], T. Kaneko[1,3], K. Matsunaga[1], V. Abetz[4]

[1] *Dept. of Macromolecular Science and Engineering, Kyoto Institute of Technology, Japan*

[2] *WPI Advanced Institute for Materials Research, Tohoku University, Japan*

[3] *JEOL Ltd., Japan*

[4] *Institute of Polymer Research, GKSS Research Centre Geesthacht GmbH, Germany*

F-2 **Surface Modification of Functional Nanoparticles Using Hydrophobic and Hydrophilic Modifiers for Tuning their Stability in Organic Solvents**

Motoyuki Iijima, and Hidehiro Kamiya

Institute of Engineering, Tokyo University of Agriculture and Technology, Japan

F-3 **Integrated Technology of Hydrothermal Synthesis and Wastewater Treatment in Supercritical Water**

Youn-Woo Lee

School of Chemical and Biological Engineering and Institute of Chemical Processes, Seoul National University, Korea

F-4 **Control of Nanoparticle and Surface Structure with Molecular Adsorbates**

Thomas Trevethan[1], Keith McKenna[1], and Alexander Shluger[1,2]

[1] *WPI Advanced Institute for Materials Research, Tohoku University, Japan*

[2] *Department of Physics, University College London,UK*

F-5 **Recent Progress in the Novel Hydrothermal Solution Processing of Advanced High Melting Nanomaterials**

K. Byrappa and K. Namratha

Crystal Growth and Materials Science Laboratory, University of Mysore, India

F-6 **Functional One, Two, and Three-Dimensional Zinc Oxide Structures by Solvothermal Processing**

Dirk Ehrentraut

World Premier International Research Center – Advanced Institute for Materials Research (WPI-AIMR), Tohoku University, Japan

Saturday, 2 October

Plenary Lecture

Chairperson:

Nanoparticle-Polymer Composites: From Homopolymers to Bijels

Thomas P. Russell[1,2]

[1] *University of Massachusetts, Amherst, USA,* [2] *WPI, Tohoku University, Japan*

Session-G 11:00-15:50

Chairperson:

G-1 **Application of Supercritical Water to Si-Based Hybrid Material Synthesis**

Yoshito Oshima

Graduate School of Frontier Sciences, The University of Tokyo, Japan

G-2 **Resonance Shear Measurement or Nano-Tribology and Nanorheology**

Kazue Kurihara

Institute of Multidisciplinary Research for Advanced Materials, WPI

Advanced Institute for Materials Research (AIMR), Tohoku University, Japan

G-3 **Development of Polymer Nanotechnology for the Future Soft Materials**

Toshio Nishi and Ken Nakajima

WPI Advanced Institute for Materials Research, Tohoku University, Japan

G-4 **Development of Polymer Clay Nanocomposites**

Makoto Kato, and Arimitsu Usuki

Coatings Lab. Sustainable Materials Div. TOYOTA Central R&D Labs.,Inc., Japan

Closing Remarks for Sendai Symposium