

# The 3<sup>rd</sup> GMSI

## International Symposium

### Symposium Agenda

**Thursday, March 3, 2011**

9:30                **Registration**

10:00              **Opening Remarks**

*Takehiko Kitamori*, Dean, School of Engineering, The University of Tokyo

*Mamoru Mitsuishi*, Symposium Chair, GMSI Program Leader, The University of Tokyo

#### **Session A: Recent Developments in Extended Nano Space Engineering & Science**

**Session A1 10:20 – 12:00**

Chair: *Yuichi Ikuhara*

10:20              **The Role of Large-scale Ab initio Simulations in Materials Research**

*Wai-Yim Ching*

Department of Physics, University of Missouri-Kansas City, USA

11:00              **Ab initio Based Simulations on Electron/Ion Transport at the Nanoscale**

*Satoshi Watanabe*

Department of Materials Engineering, The University of Tokyo

11:30              **Synthesis and Application of Mesoporous Silica Nanoparticles for Anti-Reflective Coatings**

*Tatsuya Okubo*

Department of Chemical System Engineering, The University of Tokyo

12:00              **Lunch**

**Session A2 13:00 – 14:10**

Chair: *Tadatomo Suga*

- 13:00            **Interfacial Energetics and Stability in Ceramic and Ceramic-Metal Systems**  
*Andreas W. Glaeser*  
Department of Materials Science and Engineering, University of California at Berkeley, USA
- 13:40            **Nano-Interface Structures and Properties of Advanced Materials**  
*Yuichi Ikuhara*  
Institute of Engineering Innovation, The University of Tokyo
- 14:10            **PD • RA Poster Session I**

**Session B: Nano / Micro Element Technology for Mechanical System Innovation**

**Session B1 15:10 – 17:20**

Chair: *Satoshi Watanabe*

- 15:10            **Multiscale Modelling in Materials-strength Field**  
*Satoshi Izumi, Shotaro Hara and Shinsuke Sakai*  
Department of Mechanical Engineering, The University of Tokyo
- 15:40            **Expected Contributions of Large-scale Simulation in Future Industries**  
*Chisachi Kato*  
Institute of Industrial Sciences, The University of Tokyo

- 16:10            **Template Replication - A Versatile Toolbox for Nanotechnology Engineering with Applications in Photovoltaics, Microelectronics, Photonic Crystals and Microfluidics**  
*Helmut Baumgart*  
Department of Electrical and Computer Engineering, Old Dominion University, USA
- 16:50            **Low Temperature Bonding Process for Nano-Micro Fabrication**  
*Tadatomo Suga*  
Department of Precision Engineering, The University of Tokyo
- 18:00-19:30    **Banquet (Sanjo Conference Hall)**

## **Friday, March 4, 2011**

9:30            **Registration**

### **Session B2 9:50 – 11:00**

Chair: *Sunao Ishihara*

9:50            **Energy Harvesting for Autonomous Wireless Sensor Networks**

*Ruud Vullers*

Holst Centre / IMEC, Netherlands

10:30          **MEMS-based Energy Harvesting from Environmental Vibration**

*Yuji Suzuki*

Department of Mechanical Engineering, The University of Tokyo

11:00          **PD • RA Poster Session II**

11:50          **Lunch**

### **Session C: Analysis & Synthesis for Innovative Mechanical Systems with Applications**

#### **Session C1 12:50 – 14:30**

Chair: *Yasuyuki Yokono*

12:50          **On the Development of Multiscale Thrombosis Simulator for the  
Next-Generation Supercomputer**

*Shu Takagi*

Department of Mechanical Engineering, The University of Tokyo

13:20          **The Challenge of Multiple Scales in the Biological Sciences:  
Applications in Cerebro-vascular Perfusion**

*Timothy David*

Department of Mechanical Engineering, University of Canterbury, New  
Zealand

14:00           **Multi-scale Therapy System**  
*Mamoru Mitsuishi*  
Department of Mechanical Engineering, The University of Tokyo

14:30           **Coffee Break**

**Session C2 14:45 – 16:25**

Chair: *Shigehiko Kaneko*

14:45           **Life Cycle Monitoring of Smart Composite Systems**  
*Nobuo Takeda*  
Department of Aeronautics and Astronautics, The University of Tokyo

15:15           **Micro- and Nano-capsule Based Strategies for Self-Healing Composite Materials**  
*Nancy Sottos*  
Department of Materials Science and Engineering, University of Illinois at Urbana-Champaign, USA

15:55           **Recycling Technology Applying Nano and Micro Characterization**  
*Toyohisa Fujita*  
Department of Systems Innovation, The University of Tokyo

16:30           **Discussions on Common Interests and Challenges**

17:20           **Award Ceremony**

17:30           **Closing Remarks**  
*Shinobu Yoshimura,*  
Symposium Co-chair, Department of Systems Innovation, The University of Tokyo