PROGRAM
MANA International Symposium 2009

25th- 27th February, 2009

Venue: *Tsukuba International Congress Center EPOCHAL TSUKUBA*
(Address: 2-20-3, Takezono, Tsukuba, Ibaraki, 305-0032, Japan)

February 25th

Opening *(Chair: Yoshio Bando)*

9:30 - 9:40 Opening Address
Teruo Kishi (Chief Project Officer of MANA; President of NIMS)

9:40 - 9:45 Greetings
Hiroo Imura (Chairperson of the Program Committee of the WPI Initiative; Professor Emeritus of Kyoto University)

9:45 - 10:05 Introduction of the WPI Program
Toshio Kuroki (Program Director of WPI Program; Deputy Director of Research Center for Science Systems, JSPS)

10:05 - 10:20 Outline of MANA
Masakazu Aono (Director-general of MANA, NIMS)

10:20 - 10:50 Special Lecture: Grand Challenges in Nano Science & Technology
Heinrich Rohrer (Nobel Laureate in Physics 1986)

10:50 -11:10 Coffee Break & Group Photograph at the Main Entrance

Nano-Materials 1 *(Chair: Zhong-Lin Wang, Katsuhiko Ariga)*

11:10 - 11:40 Molecular Architectures from Cyclodextrins for Biomedical Applications (**Invited**)
Gerhard Wenz (Professor, Saarland University)

11:40 - 12:00 Biotemplated Nanofabrication and Bioinspired Nanotechnology
Zhong-Lin Wang (MANA Satellite Principal Investigator; Professor, Georgia Institute of Technology)

12:00 - 12:15 Molecular Beyonds
Kentaro Tashiro (MANA Scientist, NIMS)

12:15 -13:30 Lunch

Nano-Materials 2 *(Chair: Takayoshi Sasaki & Masayoshi Higuchi)*

13:30 - 13:50 Toward Higher Performance Permanent Magnets for Automotive Applications
Kazuhiro Hono (MANA Principal Investigator, NIMS)

13:50 - 14:10 Electromechanical Properties and Engineering of Nanotubes, Nanowires, Nanobelts and Nanocones in a Transmission Electron Microscope
Dmitri Golberg (MANA Principal Investigator, NIMS)

14:10 - 14:25 Oxide Nanosheets: New Solution to Nanoelectronics
Minoru Osada (MANA Scientist, NIMS)

14:25 - 14:40 Novel Electrochromic Materials and Their Solid-state Devices
Masayoshi Higuchi (MANA Independent Scientist, NIMS)

14:40 -15:00 Coffee Break

Nano-Bio *(Chair: Yuji Miyahara & Jun Nakanishi)*

15:00 - 15:30 Intelligent Nanostructured Surface for Cell Sheet Tissue Engineering (**Invited**)
Teruo Okano (Professor, Tokyo Women's Medical University)

15:30 - 15:50 Detection of biomolecular recognition using bio-transistors
Yuji Miayahara (MANA Principal Investigator, NIMS)

15:50 - 16:05 Bio compatibility Evaluation of Bioabsorbable Magnesium Alloys
Akiko Yamamoto (MANA Scientist, NIMS)

16:05 -16:10 Break

16:10 - 16:30 Nano-particle Assisted Therapy
Yukio Nagasaki (MANA Satellite Principal Investigator; Professor, Tsukuba University)

16:30 - 16:45 Manipulation of Stem Cell Functions by Patterned Polymer Surfaces
Guoping Chen (MANA Scientist, NIMS)

16:45 - 17:00 Novel Biointerface with Well-Defined, Concentrated Polymer Brushes Obtainable by Surface-Initiated Living Radical Polymerization.
Chiaki Yoshikawa (MANA Independent Scientist, NIMS)

17:00 - 17:15 Photoresponsive Biointerfaces for Cell Analysis
Jun Nakanishi (MANA Independent Scientist, NIMS)

February 26th

Nano-Materials 3 *(Chair: Eiji Takayama-Muromachi)*

9:15 - 9:45 Recent Developments in Hybrid Inorganic-Organic Framework Materials (**Invited**)
Anthony Cheetham (Professor, University of Cambridge)

9:45 - 10:15 Control of Composition, Structure, and Morphology of Mesostructured Materials
Kazuyuki Kuroda (Professor, Waseda University) (**Invited**)

10:15 -10:35 Coffee Break

Nano-System 1 *(Chair: Masakazu Aono & Roland Wiesendanger)*

10:35 - 11:05 Atomic-scale Structure and Dynamics of Magnetic Nano-systems (**Invited**)
Roland Wiesendanger (Professor, University of Hamburg)

11:05 - 11:25 MANA-CNSI Overview
James Gimzewski (MANA Satellite Co-Director & MANA Satellite Principal Investigator; Professor, UCLA)

11:25 - 11:45 Nano Superconductivity as a Novel Source of THz Electromagnetic Wave
Xiao Hu (MANA Principal Investigator, NIMS)

11:45 - 12:00 Nanoscale Electrical Transport Measurement by Multiple-scanning-probe Microscopes
Osamu Kubo (MANA Scientist, NIMS)

12:00 - 12:15 Synthesis and Impurity Doping in Germanium Nanowires as the Basis for Next- generation Semiconductor devices
Naoki Fukata (MANA Independent Scientist, NIMS)

12:15 -13:30 Lunch

Nano-System 2 *(Chair: James K. Gimzewski & Hideaki Takayanagi)*

13:30 - 14:00 Electric-field-induced Superconductivity in an Insulator (**Invited**)
Masashi Kawasaki (Professor, Tohoku University)

14:00 - 14:20 Spin-polarized CarrierInjection Effect in a Ferromagnetic Semiconductor/Diffusive Semiconductor/Superconductor
Hideaki Takayanagi (MANA Satellite Principal Investigator; Professor, Tokyo University of Science)

14:20 - 14:40 Atomic Switch for Neural Networking Systems
Tsuyoshi Hasegawa (MANA Principal Investigator, NIMS)

14:40 - 14:55 Connection of Molecular Nanowires to Single Functional Molecules
Yuji Okawa (MANA Scientist, NIMS)

14:55 -15:15 *Coffee Break*

15:15 -16:40 **Brief Presentations for posters** *(Chair: Tsuyoshi Hasegawa)*

16:45 -18:30 **Poster Session**

19:00 -21:00 *Banquet*

February 27th

ICYS 1 *(Chair: Sukekatsu Ushioda & Daisuke Fujita)*

9:30 - 9:45 Engineering the Properties of Heusler Alloys for Spintronic Devices.
Rajanikanth Ammanabroulu (ICYS Researcher, NIMS)

9:45 - 10:00 Chemical Order in Ternary Complex Metallic Alloys
Cezar Gomez (ICYS-MANA Researcher, NIMS)

10:00 - 10:15 Nano Structured Materials Design with Phase Separation
Byung-Joo Park (ICYS Researcher, NIMS)

10:15 - 10:30 Templated Synthesis of Electrically Conductive Organic Materials
Yasuhiro Shirai (ICYS-MANA Researcher, NIMS)

10:30 -10:50 *Coffee Break*

ICYS 2 *(Chair: Shunichi Hishita & Koichi Tsuchiya)*

10:50 - 11:05 Nanopatterning Self-assembling Polymers
Michael Lee (ICYS-MANA Researcher, NIMS)

11:05 - 11:20 Development of High Field Superconducting Magnets
David Uglietti (ICYS Researcher, NIMS)

11:20 - 11:35 Three-dimensional Imaging with Confocal Scanning Transmission Electron Microscopy
Ayako Hashimoto (ICYS Researcher, NIMS)

11:35 - 11: 50 *Ab initio* Molecular Dynamics: an Atomic-scale Simulation Approach to Nanoscience and Nanotechnology
Roberto Scipioni (ICYS-MANA Researcher, NIMS)

11:50 - 13:30 Lunch

Nano-Green 1 *(Chair: Enrico Traversa & Yoshitaka Tateyama)*

13:30 - 14:00 Drastic Current Increase in Microbial Fuel Cell by the Addition of Fe_2O_3 (**Invited**)
Kazuhito Hashimoto (Professor, University of Tokyo)

14:00 - 14:30 Toward First-principles Electrochemistry (Invited)
Nicola Marzari (Professor, Massachusetts Institute of Technology)

14:30 - 14:50 Atomic and Molecular Assemblies for Efficient Energy Conversion at Solid/Liquid Interfaces
Kohei Uosaki (MANA Satellite Principal Investigator; Professor, Hokkaido University)

14:50 - 15:05 Ab Initio MD Study on Redox Reactions in Electrolyte Solutions of DSSC
Yoshitaka Tateyama (MANA Independent Scientist, NIMS)

15:05 - 15:25 Coffee Break

Nano-Green 2 *(Chair: Kohei Uosaki & Yusuke Yamauchi)*

15:25 - 15:45 Design of Catalytically Active Site for Catalytic Conversion of Biomass
Keiichi Tomishige (MANA Satellite Principal Investigator; Associate Professor, University of Tsukuba)

15:45 - 16:05 Highly Efficient Dye-sensitized Solar Cells
Liyuan Han (MANA Principal Investigator, NIMS)

16:05 - 16:25 Tailoring Nanostructured Oxide Thin Films for the Miniaturization of Solid Oxide Fuel Cells
Enrico Traversa (MANA Principal Investigator, NIMS)

16:25 - 16:40 Design of Nanoarchitectured Electrodes for Next-generation Batteries
Yusuke Yamauchi (MANA Independent Scientist, NIMS)

16:40 - 16:45 Closing Remarks
Yoshio Bando (MANA Chief Operating Officer, NIMS)