

PROGRAM
MANA International Symposium 2010
3rd- 5th March, 2010

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

March 2nd

18:30 - Reception

March 3rd

Opening (Chair: Yoshio Bando)

9:00 - 9:10 Opening Address
Sukekatsu Ushioda (Chief Project Officer of MANA; President of NIMS)

9:10 - 9:15 Greetings
Toshio Kuroki (Program Director of WPI Program;
Deputy Director of Research Center for Science Systems, JSPS)

9:15 - 9:25 Innovation from Fusion of Interdisciplinary Materials Science
Gunji Saito (Program Officer of WPI Program; Professor, Meijo University)

9:25 - 9:40 Outline of MANA
Masakazu Aono (Director-general of MANA, NIMS)

9:40 - 9:55 Special Speech: - Reserch Institutions: Chances and Merits -
Heinrich Rohrer (Nobel Laureate in Physics 1986)

9:55 - 10:35 Keynote Lecture: Graphene and beyond
C. N. R. Rao (President, Jawaharal Nehru Centre for
Advanced Scientific Research)

10:35 -10:40 *Group Photograph at the Main Entrance*

10:40 -11:00 *Coffee Break*

S-1 Nano-Green 1 (Chair: Enrico Traversa & Yusuke Yamauchi)

11:00 - 11:30 Structure and Nanostructure: Layered Materials for Low Temperature SOFC's (**Invited**)
John A. Kilner (Professor, Imperial College London)

11:30 - 11:45 Pulsed Laser Deposition as Versatile Tool for Solid Oxide Fuel Cells Application
Emiliana Fabbri (MANA Scientist, NIMS)

11:45 - 12:15 Anisotropic Optical Properties of Nanocomposite Films Based on Mesoporous Films with Controlled Macroscopic Porous Structure

Hirokatsu Miyata (Canon, Inc.)

12:15 - 12:30 Structural Control of Nanoporous Materials and their Applications

Ajayan Vinu (MANA Independent Scientist, NIMS)

12:30 -13:30 *Lunch*

S-2 Nano-System 1

(Chair: Christian Joachim & Kazuhito Tsukagoshi)

13:30 - 14:00 Nanographene; Chemistry and Physics bridging between aromatics molecules and graphene (**Invited**)

Toshiaki Enoki (Professor, Tokyo Institute of Technology)

14:00 - 14:20 A Road to Generation of High Power THz Waves from HTS Intrinsic Josephson Junctions

Kazuo Kadowaki (MANA Satellite Principal Investigator;
Professor, Tsukuba University)

14:20 - 14:40 Tunable band gap in Graphene

Kazuhito Tsukagoshi (MANA Principal Investigator, NIMS)

14:40 - 14:55 Peculiar Electronic Properties of Graphene Nanoribbons

Katsunori Wakabayashi (MANA Independent Scientist, NIMS)

14:55 - 15:10 Quantum-dot devices in graphene-based two-dimensional system

Satoshi Moriyama (MANA Independent Scientist, NIMS)

15:10 -15:30 *Coffee Break*

S-3 Nano-System 2

(Chair: Kazuo Kadowaki & Tsuyoshi Hasegawa)

15:30 - 16:00 Detection and Manipulation of Spin state of Single Molecule Magnet: Kondo resonance and ESR-STM (**Invited**)

Tadahiro Komeda (Professor, Tohoku University)

16:00 - 16:20 Quest for MANA brain: development and application of advanced nanoprobe

Tomonobu Nakayama (MANA Principal Investigator, NIMS)

16:20 - 16:40 Quantum Hamiltonian logic gates

Christian Joachim (MANA Satellite Principal Investigator;
Professor, CNRS)

16:45 - 17:00 Electronic Excitations in Atomic-Scale and Nanoscale Plasmonic Materials

Tadaaki Nagao (MANA Independent Scientist, NIMS)

March 4th

S-4 ICYS 1

(Chair: Noboru Miura & Daisuke Fujita)

- 9:00 - 9:15 Size tunable hollow nanostructures of CdSe via sacrificial route
Vaishali Shinde (ICYS Researcher, NIMS)
- 9:15 - 9:30 Phase decoupling of charge density waves and periodic lattice distortion visualized on indium atomic wires on Si(111) surface
Canhua Liu (ICYS-MANA Researcher, NIMS)
- 9:30 - 9:45 The Effect of Physicochemical Properties of Nanooxides on Cytotoxicity
Mingsheng Xu (ICYS Researcher, NIMS)
- 9:45 - 10:00 Microstructure of AlN layer on (001) and (111) diamond substrates by metalorganic vapor phase epitaxy
Masataka Imura (ICYS-MANA Researcher, NIMS)

10:00 - 10:30 *Break*

S-5 ICYS 2

(Chair: Shunichi Hishita & Koichi Tsuchiya)

- 10:30 - 10:45 Synthesis and prospects of carbon nanotube -inorganic nanowire core-shell heterostructures
Ujjal Gautam (ICYS-MANA Researcher, NIMS)
- 10:45 - 11:00 Artificial DNA scissors: Recent progress in the theoretical elucidation of the mechanism of the DNA-hydrolytic-cleavage agent $[\text{Ru}(\text{bpy})_2(\text{BPG})]^{2+}$ using the linear scaling DFT code CONQUEST
Antonio S. Torralba (ICYS Researcher, NIMS)
- 11:00 - 11:15 Wireless control of Catalytic Microbots for the Delivery and Assembly of Microobjects
Samuel Sánchez (ICYS-MANA Researcher, NIMS)
- 11:15 - 11:30 Fabrication of Novel Nano-Oxides Containing Functional Coatings for Energy Materials and Applications
Rudder Wu (ICYS Researcher, NIMS)

11:30 - 13:00 *Lunch*

S-6 Nano-Materials 1

(Chair: Zhong Lin Wang & Masayoshi Higuchi)

- 13:00 - 13:30 Dynamic Nanostructures from Self-Assembly of Rigid Amphiphiles (**Invited**)
Myongsoo Lee (Professor, Seoul National University)

- 13:30 - 14:00 New R & D Design for Materials on the Basis of Electrochemical Nanotechnology (**Invited**)
Tetsuya Osaka (Professor, Waseda University)
- 14:00 - 14:20 Oxide semiconductors for optoelectronics
Naoki Ohashi (MANA Principal Investigator, NIMS)
- 14:20 - 14:40 New Applications of Multi-functional Ferroelectric Templates
Kenji Kitamura (MANA Principal Investigator, NIMS)
- 14:40 -15:00 *Coffee Break*

S-7 Nano-Bio 1

(Chair: Yuji Miyahara & Jun Nakanishi)

- 15:00 - 15:30 Regulation of Cellular Responses on the Nanometer Scale (**Invited**)
Joachim P. Spatz (Professor, Max Planck Institute for Metals Research
and the University of Heidelberg)
- 15:30 - 15:50 Nanoparticles possessing Anti-oxidative Stress Activity for Ischemia Reperfusion
Injury
Yukio Nagasaki (MANA Satellite Principal Investigator;
Professor, University of Tsukuba)
- 15:50 - 16:05 Hydrothermal Synthesis of Hydroxyapatite on Magnesium to Improve its Corrosion
Resistance
Sachiko Hiromoto (MANA Scientist, NIMS)
- 16:05 -16:10 *Break*

S-8 Nano-Bio 2

(Chair: Yuji Miyahara & Jun Nakanishi)

- 16:10 - 16:40 Chemical and biological factors that stimulate internalization of arginine-rich
peptides (**Invited**)
Shiroh Futaki (Professor, Kyoto University)
- 16:40 - 17:00 Self-assembled molecular gate field effect transistors for biomolecular detection
Yuji Miyahara (MANA Principal Investigator, NIMS)
- 17:00 - 17:15 Live cells-based cytotoxic sensorchip fabricated in a microfluidic system
Akiyoshi Taniguchi (MANA Scientist, NIMS)
- 18:00 -20:00 *Banquet*

March 5th

S-9 Nano-Green 2

(Chair: Liyuan Han & Yoshitaka Tateyama)

- 9:00 - 9:30 The water/TiO₂ interface and other materials related aspects of TiO₂ based photocatalysis
Annabella Selloni (Professor, Princeton University)
- 9:30 - 9:50 Nano Photocatalytic Materials: possibilities & challenges
Jinhua Ye (MANA Principal Investigator, NIMS)
- 9:50 - 10:05 Efficient Ruthenium(II) Polypyridyl Sensitizers for Dye-Sensitized Solar Cells
Ashraful Islam (MANA Scientist, NIMS)
- 10:05 - 10:20 Interfacial water on TiO₂ anatase (101) and (001) surfaces by first-principles molecular dynamics with TiO₂ slabs dipped in bulk water.
Yoshitaka Tateyama (MANA Independent Scientist, NIMS)
- 10:20 - 10:40 *Coffee Break*

S-10 Nano-Materials 2

(Chair: Yoshio Bando & Naoki Ohashi)

- 10:40 - 11:10 Carbon Nanotubes~Responsible production, applications and safety for success~
Morinobu Endo (Professor, Shinshu University)
- 11:10 - 11:30 Self-Powered Nanosensors/Nanosystems
Zhong Lin Wang (MANA Satellite Principal Investigator;
Professor, Georgia Institute of Technology)
- 11:30 - 11:45 On Quantum-confined Metal Oxide Structures & Devices
Lionel Vayssieres (MANA Independent Scientist, NIMS)
- 11:45 - 13:00 *Lunch*
- 13:00 - 14:40 **Brief Presentations for posters** *(Chair: Tsuyoshi Hasegawa)*
- 14:40 - 14:45 Closing Remarks
Yoshio Bando (MANA Chief Operating Officer, NIMS)
- 14:45 - 15:00 *Coffee Break*
- 15:00 - 17:00 **Poster Session**