

PROGRAM

MANA International Symposium 2020 Jointly with ICYS

1st March – 3rd March, 2020

Tsukuba International Congress Center EPOCHAL TSUKUBA

(Address: 2-20-3, Takezono, Tsukuba, Ibaraki, 305-0032, Japan)

Sunday, March 1st

17:30 - *Registration*

18:00 – 20:00 *Reception*

Monday, March 2nd

8:30 - *Registration*

Opening

Chair: Tomo Nakayama

9:00 - 9:10 *Greetings* Kazuhiro Hono (Executive Vice President, NIMS)
Akira Ukawa (WPI Program Director, JSPS)

9:10 - 9:20 *Research Activities of MANA* Takayoshi SASAKI (Director, MANA, NIMS)

Keynote Lecture 1

Chair: Tomo Nakayama

9:20 - 10:05 *Atom Defined Fabrication Comes of Age: Binary Logic and an Ising Simulator*
Robert A. WOLKOW (Professor, University of Alberta, Canada)

10:05 - 10:30 *Group Photograph & Coffee Break*

Session 1: Unconventional Computing and Signal Processing for Future IT

Chair: Tomo Nakayama

10:30 - 11:00 *A Different Perspective of Neuromorphic Computing-Materials and Electrochemical Processes*

Iliia VALOV (Group Leader, PI, Research Center Jülich, Germany)

11:00 - 11:30 *Harnessing Complexity in Neuro-Memristive Nanowire Networks for Machine Intelligence beyond AI*

Zdenka KUNCIC (Professor, University of Sydney, Australia)

11:30 - 12:00 *Quantum Annealing Accelerates Materials Discovery*

Shu TANAKA (Professor, Waseda University, Japan)

12:00 - 12:15 *Ionic Nanoarchitectonics for Innovative IT Devices*

Kazuya TERABE (Group Leader, PI, MANA, NIMS)

12:15 - 13:15 *Lunch*

Keynote Lecture 2:

Chair: Takayoshi Sasaki

13:15 - 14:00 *Synthetic Chemistry of Nanostructured Silica and Silicates*

Kazuyuki KURODA (Professor, Waseda University, Japan)

Session 2: Nanoarchitectonic Synthesis and Functionalities at Nano-meso Scale

Chair: Jonathan Hill

- 14:00 - 14:30 *Porous Silica and Hybrid Nanospheres Some Last Advances: Shape Porosity and Pore Arrays*
Laurent BONNEVIOT (Professor, ENS de Lyon, France)
- 14:30 - 15:00 *Materials Space-Techtonics: A New Conceptual Paradigm for Designing Conductive Porous Architectures*
Yusuke YAMAUCHI (Professor, University of Queensland, Australia, MANA, NIMS)
- 15:00 - 15:15 *Fullerene-Based Nanomaterials for Energy Storage, Sensing and Beyond*
Lok Kumar SHRESTHA (Senior Scientist, MANA, NIMS)
- 15:15 - 15:30 Coffee Break**

Session 3: Molecular Nanoarchitectonics at Surface and Interface

Chair: Kazuya Terabe

- 15:30 - 16:00 *Magnetism in "On-Surface Synthesized" Hydrocarbon Structures*
Dimas G. de OTEYZA (Professor, Donostia International Physics Center, Spain)
- 16:00 - 16:30 *Bottom-up Molecular Synthesis of Atomically Precise Graphene Nanoribbons and Quantum Dots*
Akimitsu NARITA (Associate Professor, OIST, Japan)
- 16:30 - 17:00 *Molecular Nanoarchitectonics for Ultra-Sensitive Cesium Ion Detector*
Yutaka WAKAYAMA (Group Leader, Deputy Director, MANA, NIMS, Japan)
- 17:00 - 17:15 *Interfacial Polymerization of Synthetic 2D Polymers - Designs, Synthesis, and Functions*
Michio MATSUMOTO (Independent Scientist, MANA, NIMS)
- 17:15 - 17:20 Nano Car Race II**
Christian JOACHIM (Satellite PI, MANA, CEMES-CRNS, France)
- 17:20 - 18:30 Poster Session**
- 18:30 - 20:30 Banquet**

Tuesday, March 3rd

- 8:30 - *Registration*

Session 4: Soft Electronics & Photonics

Chair: Yutaka Wakayama

- 9:00 - 9:30 *Extending, Distorting and Stacking Polycyclic Aromatic Hydrocarbons into Functional Materials*
Aurelio MATEO-ALONSO (Professor, POLYMAT, Spain)
- 9:30 - 10:00 *Polymer Based High-Speed Optical Transmitter beyond 100 Gbit/s for Telecommunications*
Shiyoshi YOKOYAMA (Professor, Kyushu University, Japan)
- 10:00 - 10:15 *Room-Temperature Printed Electronics: Materials, Processes and applications*
Takeo MINARI (Independent Scientist, MANA & CFSN, NIMS)

- 10:15 – 10:30 Coffee Break**

Session 5: Chemo-mechanical Nanoarchitectonics

Chair: Takashi Nakanishi

- 10:30 - 11:00 *Mechanochemistry: from Luminescent Materials to Solvent-less Organic Synthesis*
Hajime ITO (Professor, Hokkaido University, Japan)
- 11:00 – 11:30 *Life-like Soft Materials from Anisotropic Colloids*
Yasuhiro ISHIDA (Team Leader, RIKEN, Japan)

11:30 - 11:45 *Shape-Memory Polymers for Biomedical Applications*
Mitsuhiro EBARA (Group Leader, Associate PI, MANA, NIMS)

11:45 - 14:00 *Poster Session (Award Selection) & Lunch*

Session 6: Interactions of Experiment, Theory and Computing **Chair: Ayako Nakata**

14:00 – 14:30 *Nanomaterials Design Based on Symmetry and Periodicity of Molecular Clusters*
Naoki HARUTA (Professor, Kyoto University, Japan)

14:30 – 14:45 *Data-Driven Exploration of New Pressure-Induced Superconductors*
Yoshihiko TAKANO (Group Leader, PI, MANA, NIMS)

Keynote Lecture 3: **Chair: Tsuyoshi Miyazaki**

14:45 – 15:30 *First-Principles Material Simulation and Beyond*
Shinji TSUNEYUKI (Professor, University of Tokyo, Japan)

15:30 - 15:45 *Coffee Break*

Session 7: Passive and Active Functions at Nanoscale **Chair: Daiming Tang**

15:45 - 16:15 *Nanostructured Silicon beyond Nanowires: Novel Opportunities for Thermoelectricity*
Dario NARDUCCI (Associate Professor, University of Milano Bicocca, Italy)

16:15 - 16:45 *Dynamic Microstructural Change of Calcium Silicate Hydrate in Hardened Cement Paste during Drying*
Ippei MARUYAMA (Professor, Nagoya University, Japan)

16:45 - 17:15 *In-situ Electron Microscopy Probing on the Correlation Between Functionality and Nanoscale Process in Energy Materials*
Chongmin WANG (Lab Fellow, Pacific Northwest National Laboratory, USA)

17:15 - 17:30 *Development of STEM-Based Thermal Analytical Microscopy*
Naoyuki KAWAMOTO (Senior Scientist, MANA, NIMS)

Award and Closing Ceremony

17:30 - 17:45 *Poster Award Ceremony & Closing*