



TOKYO TECH IIR RESEARCH MAP 2019



Using organic metallochemistry to create super- and supramolecule functions
 Kohtaro Osakada
 CLS

Development of functional molecules responsive to the environment and external stress
 Munetaka Akita
 CLS

Toward an understanding of photosynthetic organism survival strategies
 Toru Hisabori
 CLS

Polymer design for future diagnostic and therapeutic medicine
 Nobuhiro Nishiyama
 CLS

Advanced functionalization and alloy design of newly functional flexible materials
 Hideki Hosoda
 MSL/FIRST

Biointerfaces and the measurement and analysis of bioinformatics
 Yasuharu Koike
 Biointerfaces Unit

Unlocking the mechanisms of gene expression in living cells
 Hiroshi Kimura
 Cell Biology Center

Uncovering the molecular mechanism of chaperons and prions
 Hideki Taguchi
 Cell Biology Center

Establishing a high-performance chemistry system for the global environment
 Takeo Yamaguchi
 CLS

Development of intelligent computing architectures
 Masato Motomura
 AI Computing Unit

Information and graphics processing for imaging and recognition applications
 Nagaaki Ohyama
 ASIST

Elucidating the molecular mechanisms of autophagy, an intercellular degradation system
 Yoshinori Ohsumi
 Cell Biology Center

Advanced system architecture using new and low-power energy technology
 Takao Kashiwagi
 AES Center

Establishing theoretical basis for quantum computer
 Hidetoshi Nishimori
 Quantum Computing Unit

Harnessing hydrogen utilization technology to achieve a hydrogen energy society
 Ken Okazaki
 Global Hydrogen Energy Unit

Exploiting big data to model socio- and econophysics
 Misako Takayasu
 Advanced Data Analysis and Modeling Unit

Making all solid-state batteries universally available
 Ryoji Kanno
 All-Solid-State Battery Unit

Using nuclear energy for a low-carbon, futuristic energy society
 Yukitaka Kato
 LANE

Creating functional materials using cutting-edge molecular science
 Takanori Fukushima
 CLS

Advanced nuclear fuel cycle incorporating radioactive waste treatment
 Kenji Takeshita
 LANE

Creating new materials by combining metallic elements
 Kimihisa Yamamoto
 Hybrid Materials Unit

Reduction of radioactive waste in a high-speed bleed and burn reactor
 Toru Obara
 LANE

Transforming abundant elements into innovative materials
 Hideo Hosono
 MCES

Development of reinforced steel buildings that safely withstand extreme earthquakes
 Satoshi Yamada
 FIRST/MSL

Production and application of diamond-like carbon
 Naoto Ohtake
 FIRST

Light and ultrasound-based sensing and actuators
 Kentaro Nakamura
 FIRST

New chemical synthesis methods using nanospace catalysts
 Toshiyuki Yokoi
 Nanospace Catalysis Unit

Machine systems employing electromagnetic energy
 Tadahiko Shinshi
 FIRST

Environmentally benign heterogeneous catalysis
 Michikazu Hara
 Sustainable Chemical Resource Production Unit

Development and application technologies for 3D, large-scale accumulative microprocessors
 Takayuki Ohba
 Heterogeneous and Functional Integration Unit

Integrated photonic devices revolutionizing optical communication
 Fujio Koyama
 FIRST

Analysis of microparticles and exhaust gases by laser spectroscopy
 Masaaki Fujii
 CLS

Environmentally friendly functional oxide materials
 Masaki Azuma
 MSL

Processing and analytical technologies for high-performance semiconductor devices
 Kazuo Tsutsui
 FIRST

Using semiconductors as ultra-compact, ambient temperature terahertz light sources
 Masahiro Asada
 FIRST

FIRST : Laboratory for Future Interdisciplinary Research of Science and Technology
 MSL : Laboratory for Materials and Structures
 CLS : Laboratory for Chemistry and Life Science
 LANE : Laboratory for Advanced Nuclear Energy
 AES Center : International Research Center of Advanced Energy Systems for Sustainability
 ASIST : Advanced Research Center for Social Information Science and Technology
 MCES : Materials Research Center for Element Strategy