

## 2nd Core Elucidation of Emergent Material Function

**Yoji SHIBUTANI** (Chair of the 2nd Core)

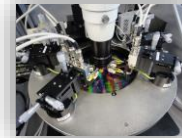
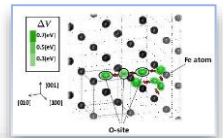
Professor, Department of Mechanical Engineering, Graduate School of Engineering

Solid Mechanics, Computational Mechanics, Materials Science Size Effects of Solid Mechanics, Multiscale Modeling of Defects, Plastic-physics of Crystalline and Amorphous Materials, Beam-induced Acoustic Technology

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Professor, Department of Mechanical Science and Bioengineering, Graduate School of Engineering Science

Theoretical Solid Mechanics, Computational and Theoretical Materials Science, First Principles Study of Mechanical Properties of Materials, Computational Mechanics, Design of Functional Nano-structures using Carbon Nanotube, Multi-Scale Modeling of Materials



**Heiji WATANABE**

Professor, Department of Material and Life Science, Graduate School of Engineering

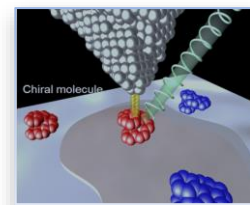
Nano-electronics, Applied Surface Science

Advanced Si-based LSI, SiC-based power devices, Material characterization by synchrotron radiation, Bio-nano process

**Takashi KUBO**

Professor, Department of Chemistry, Graduate School of Science

Structural Organic Chemistry, Physical Organic Chemistry Research on Syntheses and Functional Properties of Novel Organic Molecules



**Yuji KUWAHARA**

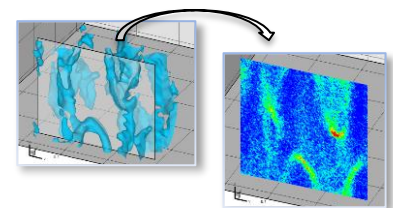
Professor, Department of Precision Science & Technology, Graduate School of Engineering

Surface Chemical Physics, Soft Material Devices, Synchrotron Radiation, Nanoscience

**Hidehiro YASUDA**

Professor, Department of Materials and Manufacturing Science, Graduate School of Engineering & Research Center for Ultra-High Voltage Electron Microscopy

Materials science by in-situ transmission electron microscopy, Nanoparticle physics, Irradiation-induced phenomena by ultra-high voltage electron microscopy



**Toshitsugu TANAKA**

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Multiphase Flows, Gas-Solid Flows, Mechanics of Granular Flows, Discrete Particle Modeling of Dense Gas-Solid Flows, Multiscale Modeling of Gas-Solid Flows

**Nobuya MORI**

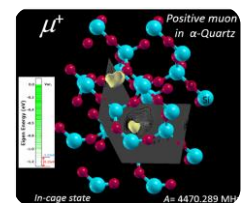
Professor, Department of Electrical, Electronic and Information Engineering, Graduate School of Engineering

Semiconductor Physics, Quantum transport and electron-phonon interaction in semiconductor nano structures, Non-equilibrium Green's function method applied to device simulation, Electron transport in semiconductor superlattices under magnetic fields, Electronic and optical properties of semiconductors under free-electron laser irradiation

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Laser applied nano-measurement in production engineering



**Hirotsugu OGI**

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Elastic constants, Ultrasonics, Nondestructive evaluation, Sonochemistry, biosensors

**Tetsusei KURASHIKI**

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Image Based Analysis-Design System for Bio Material, Mechanical Characteristics of Advanced Textile Composites, Disaster Mitigation Simulation in Urban Areas

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Computational Materials Science, Computational Mechanics, Atomistic Modeling of Thermal and Mechanical Properties of Solid Materials, Characterization of Hydrogen Diffusion Kinetics in Solid, Molecular Simulations of Polymer Systems

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Theoretical Physics, Solid State Physics, Surface Physics, Computational Physics, Computational Materials Design, Quantum dynamics of surface reactions, Computational Materials Design Copymart, Nano-physics of surface nano-structures