

# Program

## December 9 (Mon)

13:00-13:15

Welcome Address: **Tateo Shimosawa**, Director of RIES

Opening Remarks: **Nobuhiro Ohta**, Program Committee

## Session I: Special Lecture

Chairman: Nobuhiro Ohta (RIES)

13:15-14:30

**Yuan T. Lee** (President of Academia Sinica, Taiwan)

"Chemical Dynamics, Combustion and the Future of Mankind"

14:30-15:30 Coffee Break

15:30-18:00 RIES-Hokudai 10th Anniversary Ceremony

18:00- Conference Dinner with 10th Anniversary Celebration Party

## December 10 (Tue)

## Session II: Function (機能)

Chairman: Toshirou Yagi (RIES)

9:00-9:40

**Oliver B. Wright** (Hokkaido Univ., Sapporo)

"Imaging Ripples on Crystals"

9:40-10:20

**Marie-Hélène Lemée-Cailleau** (CNRS-Univ. of Rennes 1, France)

"Photo-Induced Ferroelectricity at the Neutral-to-Ionic Transition by Time-Resolved X-Ray Crystallography"

10:20-10:35 Coffee Break

Chairman: Takeshi Karino (RIES)

10:35-11:15

**Kazuhito Hashimoto** (Univ. of Tokyo, Tokyo)

"Design of Photomagnet Using Bimetallic Polycyanides"

11:15-11:55

**Shinya Kuriki** (RIES, Sapporo)

"How Does Magnetic Flux Move in a Superconductor? -Detecting Single Flux Vortices Using a SQUID-"

11:55-13:20 Photos and Lunch

### **Session III: Machinery (機械)**

Chairman: Mamoru Tamura (RIES)

13:20-14:00

**Kazuhiko Kinoshita, Jr.** (Center for Integrative Bioscience, Okazaki)

"Chemo-Mechanical Coupling in a Rotary Molecular Motor Revealed by Single-Molecule Physiology"

14:00-14:40

**Tetsuo Ueda** (RIES, Sapporo)

"An Intelligent Slime Mold -A Self-Organizing System of Shape and Information-"

14:40-15:20

**Yoshihito Osada** (Hokkaido Univ., Sapporo)

"Intelligent Gels -An Approach to Artificial Muscles-"

15:20-15:35 Coffee Break

Chairman: Masatsugu Shimomura (RIES)

15:35-16:15

**Jerker Widengren** (Karolinska Institutet, Sweden)

"Fluorescence Correlation Spectroscopy (FCS) and Related Techniques for Characterization of Sparse Amounts of Molecules in Solution and on Cell Surfaces"

16:15-16:55

**Hiroshi Tokumoto** (RIES, Sapporo)

"New Nanobiotechnology Field Opened by Carbon Nanotube SPMs"

17:30-19:30 Poster Presentation with Conference Mixer

## December 11 (Wed)

### Session IV: Mechanism (機構)

Chairman: Yasumasa Nishiura (RIES)

9:00-9:40

**Shigeki Takeuchi** (RIES, Sapporo)

"Quantum Mechanics and Single Photon Technology"

9:40-10:20

**Masahide Terazima** (Kyoto Univ., Kyoto)

"New Techniques to Detect Energy and Conformational Changes of Proteins"

10:20-11:00

**Pill-Soon Song** (Kumho Life & Environmental Science Lab., Korea)

"A Biological Light Switch, Phytochrome"

11:00-11:15 Coffee Break

Chairman: Keiji Sasaki (RIES)

11:15-11:55

**Tetsuro Majima** (Osaka Univ., Osaka)

"Hole Transfer in DNA"

11:55-12:35

**Min Gu** (Swinburne Univ. of Tech., Australia)

"Imaging and Trapping in Scanning Total Internal Reflection Fluorescence Microscopy"

12:35- Closing Remarks

## Poster Presentations

December 10 (Tue)

17:30-19:30

- P1 Tomoyuki Akutagawa, Tatsuo Hasegawa and Takayoshi Nakamura**  
(*Laboratory of Molecular Electronics*)  
"Development of Molecular Systems toward Nano-Molecular Electronics"
- P2 Hiroshi Nakagawa, Satoru Tanaka and Ikuo Suemune**  
(*Laboratory of Optoelectronics*)  
"Self-Ordering of Steps on Vicinal SiC Surfaces"
- P3 Hiroshi Nishino<sup>\*1</sup>, Shingo Yamashita<sup>1</sup>, Yoshiyuki Yamazaki<sup>1</sup>,  
Michiko Nishikawa<sup>2</sup>, Fumio Yokohari<sup>2</sup> and Makoto Mizunami<sup>1,3</sup>**  
(<sup>1</sup>*Laboratory of Neuro-Cybernetics*, <sup>2</sup>*Fukuoka Univ.*, <sup>3</sup>*PRESTO*)  
"Discovery of Interneurons Processing Thermo- and Hygrosensory Signals in  
an Insect Brain"
- P4 Takayuki Nakajima and Koichi Kawahara**  
(*Laboratory of Biomedical Control*)  
"Relationship between the Activation of CREB and Ischemic Tolerance in the  
Penumbra Region of Rat Cerebral Cortex"
- P5 Jun Kawamata**  
(*Laboratory of Quantum Electronics*)  
"Two-Photon Induced Fluorescent Properties of a Class of Conjugated Ketone  
Derivatives and a Metal Complex"
- P6 Nobuhiro Ohta, Takakazu Nakabayashi and Minoru Tsushima**  
(*Laboratory of Molecular Photonics*)  
"Electric Field Effects on Photochemical Processes in Solid Films"
- P7 Katsuhiko Ishii, R. Yoshida and Toshiaki Iwai**  
(*Laboratory of Nanomaterials*)  
"Single-Scattering Spectroscopy for Dense Media"

- P8 Toshirou Yagi, Yhuji Tsujimi, Masaru Kasahara and Masaki Takesada**  
(*Laboratory of Phase Transition*)  
"Noble Properties of Dielectric Materials Appeared in the Phase Transition Mechanism"
- P9 H. Aonuma<sup>1\*</sup>, Y. Matsumoto<sup>2</sup>, S.R. Ott<sup>3</sup>, M.R. Elphick<sup>3</sup>, M. Mizunami<sup>2</sup> and T. Shimozawa<sup>1</sup>**  
(*<sup>1</sup>Laboratory of Neuro-Cybernetics, <sup>2</sup>Tohoku Univ., <sup>3</sup>Univ. of London*)  
"Function of NO-cGMP Signaling in Olfactory Memory in the Cricket"
- P10 Akito Chiba, Hideki Fujiwara, Jun-ichi Hotta, Shigeki Takeuchi and Keiji Sasaki**  
(*Laboratory of Optical Systems Engineering*)  
"Resonant Frequency Control of a Microspherical Cavity by Temperature Adjustment"
- P11 Toshiyuki Nakagaki\*, Hiroyasu Yamada and Ryo Kobayashi\***  
(\**Laboratory of Cellular Informatics*)  
"Physiological Approach to Amoeboid Behavior in True Slime Mold"
- P12 Toshiaki Iwai and Kenta Matsubara**  
(*Laboratory of Nanomaterials*)  
"Diffusing Light Reflectometry for Imaging Blood Vessels"
- P13 Ryo Kobayashi and Toshiyuki Nakagaki**  
(*Laboratory of Nonlinear Studies and Computation*)  
"Mathematical Modeling of Amoeboid Behavior in True Slime Mold"
- P14 Hideki Fujiwara and Keiji Sasaki**  
(*Laboratory of Optical Systems Engineering*)  
"Optical Confinement within a Random Medium"
- P15 Hiroshi Yabu<sup>1,2</sup>, Masaru Tanaka<sup>3</sup>, Kuniharu Ijiro<sup>3</sup> and Masatsugu Shimomura<sup>2,3</sup>**  
(*<sup>1</sup>Hokkaido Univ., <sup>2</sup>RIKEN, <sup>3</sup>Laboratory of Molecular Devices*)  
"Preparation of Nano-particles Containing Polynucleic acid-Amphiphile Polyion Complex and Their Molecular Recognition Properties"

- P16 Jiuk Jung, Tetsuo Kobayashi and Shinya Kuriki**  
(*Laboratory of Electromagnetic Sensing*)  
"Modulation of Spontaneous EEGs during the Target Recognition Based on Texture Cue"
- P17 Fumihiko Fujii,\* Yoshinobu Nodasaka† and Mamoru Tamura\***  
(\**Laboratory of Supramolecular Biophysics, †Hokkaido Univ.* )  
"The Light Scattering Increase Related to Matrix Shrinkage of Isolated Rat Brain Mitochondria during Anoxia"
- P18 Koichi Niwa, Tatsunori Kado and Takeshi Karino**  
(*Laboratory of Biofluid Dynamics*)  
"The Effect of a Shear Flow on the Uptake of LDL by an EC-SMC Bilayer in Culture"
- P19 Yasutaka Matsuo<sup>1</sup>, Kuniharu Ijiro<sup>1,2</sup>, Masatsugu Shimomura<sup>2</sup>**  
(<sup>1</sup>*PRESTO, <sup>2</sup>Laboratory of Molecular Devices*)  
"Stretching of Single DNA Molecules by Langmuir-Blodgett Method"
- P20 Kunihiro Kojima, Holger F. Hofmann, Shigeki Takeuchi and Keiji Sasaki**  
(*Laboratory of Optical Systems Engineering*)  
"Nonlinear Interaction in a Two Photon Pulse at an Atom-Cavity System"
- P21 Katsuhisa Sato, Masaru Tanaka, Masahumi Takebayashi, Kazutaka Nishikawa, Kiyoshi Hasebe, Tomoaki Kawai, Michiaki Matsushita, Satoru Todo and Masatsugu Shimomura**  
(*Laboratory of Molecular Devices*)  
"Preparation of the Patterned Film of Biodegradable Polymer for Tissue Engineering Scaffolds"
- P22 Takeshi Homma<sup>1</sup>, Shuichi Ino<sup>1</sup>, Takashi Izumi<sup>2</sup>, Hayato Kuroki<sup>3</sup> and Tohru Ifukube<sup>3</sup>**  
(<sup>1</sup>*Laboratory of Sensory Information Engineering, <sup>2</sup>Hokkaido Tokai Univ. <sup>3</sup>The Univ. of Tokyo*)  
"Mechanical Characteristics of Human Fingerpad for a Design of a Tactile Display"