

**2019 International Symposium of  
Research Institute for Electronic Science (RIES), Hokkaido University &  
Center for Emergent Functional Matter Science (CEFMS)  
National Chiao Tung University**

**Symposium Program**

**Invited Lectures (3<sup>rd</sup> December 2019)**

**14:20-14:30: Opening Remarks**

Prof. Toshiyuki Nakagaki, RIES & Prof. Yaw-Kuen Li, CEFMS

**Session 1**

**Chair:** Prof. Hai Jun Cho

**14:30 – 15:00: Invited Lecture 1**

*An Emergent Metallic State*

Prof. Jiunn-Yuan Lin, CEFMS

**15:00 – 15:30: Invited Lecture 2**

*Plasmonics in Deep UV for Nanoimaging*

Prof. Atsushi Taguchi, RIES

**15:30 – 16:00: Invited Lecture 3**

*Polymer Nanostructures by Wetting Nanopores in Anodic Aluminum Oxide Templates*

Prof. Jiun-Tai Chen, CEFMS

**Session 2**

**Chair:** Prof. Yuta Takano

**16:00 ~ 16:30: Invited Lecture 4**

*Ammonia Photosynthesis using Plasmon-induced Charge Separation under Visible Light Irradiation*

Prof. Tomoya Oshikiri, RIES

**16:30~17:00: Invited Lecture 5**

*Catalysts of Metal Substituted Pyrochlores  $A_2B_2O_7$  ( $A = \text{Alkali/Alkaline Earth/Rare Earth Elements}$ ;  $B = \text{Ce/Ru/Ni}$ ) for Oxidative Steam Reforming of Ethanol*

Prof. Chi-Shen Lee, CEFMS

**17:00~18:00: Photo, Coffee & Poster Sessions**

## Invited Lectures (4<sup>th</sup> December 2019)

### Session 3

Chair: Prof. Mitomo Hideyuki

09:30 ~ 10:00: **Invited Lecture 6**

*Optically-Controlled Synthesis and Modification of Lead Halide Perovskites under Laser Trapping*

Prof. Ken-ichi Yuyama, RIES

10:00 ~ 10:30: **Invited Lecture 7**

*Picosecond Creation of Switchable Optomagnets from a Polar Antiferromagnet with Giant Photoinduced Kerr Rotations*

Prof. Yu-Miin Sheu, CEFMS

10:30 ~ 11:00: **Invited Lecture 8**

*Hydrogen-bonded Organic Frameworks*

Prof. Ichiro Hisaki, RIES

11:00 ~ 11:15: **Coffee Break**

### Session 4

Chair: Prof. Melbert Jeem

11:15 ~ 11:45: **Invited Lecture 9**

*Design Microfluidic Chips for Clinical Use*

Prof. Bor-Ran Li, CEFMS

11:45~12:15: **Invited Lecture 10**

*Type of Singularity That can Appear in Pareto Set*

Prof. Hiroshi Teramoto, RIES

12:15: **Concluding Remarks**

Prof. Kuniharu Ijiro, RIES

**Posters (17:00 ~18:00, 3<sup>rd</sup> December 2019)**

<b>P01</b>	<b>Oxidative Steam Reforming of Ethanol over <math>M_xLa_{2-x}Ce_{1.8}Ru_{0.2}O_{7-δ}</math> (M = Mg, Ca) Catalysts: Effect of Alkaline Earth Metal Substitution and Support on Stability and Activity</b> <u>Ho-Chen Hsieh</u> , Ping-Wen Tsai, Yuan-Chia Chang, Sheng-Feng Weng, Hwo-Shuenn Sheu, Yu-Chun Chuang, Chi-Shen Lee
<b>P02</b>	<b>Fabrication of Porous Polyimide and Carbon Nanotubes Using Anodic Aluminum Oxide Templates</b> <u>Hung-Chieh He</u> , Yi-Hsuan Tu, Jia-Wei Li, Yu-Liang Lin, Jiun-Tai Chen
<b>P03</b>	<b>A Passive Driven Microfluidic Droplet Array for Optical Quantitative PCR Analysis</b> <u>Pei-Heng Lin</u> , Bor-Ran Li
<b>P04</b>	<b>Sequential Syntheses of Three-dimensional Flower-like Graphene–MnO<sub>2</sub>–WO<sub>3</sub> Nanometer Architectures and Their use in Supercapacitors</b> <u>Shih-Yu Huang</u> , Sumanta Kumar Sahoo, Phuoc-Anh Lea, Po-Jen Yen, a Yi-Chun Lu, Po-Wen Chiu, Tseung-Yuen Tseng, Kung-Hwa Wei
<b>P05</b>	<b>Block Copolymer/AAO Hybrid Substrates for Surface-Enhanced Raman Scattering</b> <u>Yu-Liang Lin</u> , Ming-Hui Shen <sup>1</sup> , Yi-Fan Chen, Jiun-Tai Chen
<b>P06</b>	<b>Optical Transport of Fluorescent Nanodiamonds Inside a Tapered Glass Capillary</b> <u>Christophe Pin</u> , Ryohei Otsuka, Keiji Sasaki
<b>P07</b>	<b>Plasmonic Optical Trapping of Molecular Nano-aggregates</b> <u>Kenji Setoura</u> , Yu Kitamura, Yohei Nishikawa, Keiji Sasaki
<b>P08</b>	<b>Particle Tracking of Individual Nanoparticles Using Chemical Fingerprint</b> <u>Han Wen</u> , Tomoko Inose, Tatsuya Ogawa, Beatrice Fortuni, Susana Rocha, Kenji Hirai, Hiroshi Uji-i
<b>P09</b>	<b>Intracellular Time-lapse Observation of Mesoporous Silica Nanoparticles</b> <u>Ibuki Kotani</u> , Tomoko Inose, Beatrice Fortuni, Indra Van Zundert, Kenji Hirai, Hiroshi Uji-i
<b>P10</b>	<b>Coating of Metal Nanowire with Metal-organic Framework for Size-selective Surface-Enhanced Raman Scattering</b> <u>Taku Murasugi</u> , Kenji Hirai, Tomoko Inose, Hiroshi Uji-i
<b>P11</b>	<b>Tip-enhanced Raman Spectroscopy on Chemically Unzipped Carbon Nanoribbon</b> Shoji Sugioka, Tomoko Inose, Shinnosuke Hara, Shuichi Toyouchi, Peter Walke, Kenji Hirai, Yasuhiko Fujita, Hirofumi Tanaka, Hiroshi Uji-i
<b>P12</b>	<b>End-shape Engineering on Metal Nanowires</b> <u>Taiki Akashi</u> , Tomoko Inose, Shuichi Toyouchi, Kenji Hirai, Hiroshi Uji-i
<b>P13</b>	<b>Deposition of Gold Nanoparticles on Silver Nanowires for Nano-Heat Source</b> <u>Yusuke Nakaο</u> , Toyouchi Shuichi, Kenji Hirai, Tomoko Inose, Hiroshi Uji-i
<b>P14</b>	<b>SERS-based pH Sensors with Highly Reduced Cytotoxicity</b> <u>Qiang Zhang</u> , Kiri Watanabe, Ibuki Kotani, Beatrice Fortuni, Taemaitree Farsai, Hitoshi Kasai, Johan Hofkens, Kenji Hirai, Tomoko Inose, Hiroshi Uji-i
<b>P15</b>	<b>Controlled Environment Nano-Imaging Free From Radiation Damage by X-ray Laser Diffraction</b> <u>Yoshinori Nishino</u> , Akihiro Suzuki, Yoshiya Niida, Yasumasa Joti, Yoshitaka Bessho
<b>P16</b>	<b>Design of Extremely Low Background Liquid Cell Arrays toward X-Ray Free-Electron Laser-based Single-particle Imaging</b> <u>Akihiro Suzuki</u> , Hirokatsu Yumoto, Takahisa Koyama, Yasumasa Joti, Yoshitaka Bessho, Kensuke Tono, Makina Yabashi, Tetsuya Ishikawa, Yoshinori Nishino

P17	<b>Photon-recycling by Nonradiative Energy Transfer in Piezochemically Synthesized Organic-Inorganic Hybrid Lead Halide Perovskites</b> <u>Sushant Ghimire, Yuta Takano, Vasudevanpillai Biju</u>
P18	<b>Acridinium-based Electron Donor- Acceptor Dyads for Efficient Photothermal Energy Conversion</b> <u>Devika Sasikumar, Yuta Takano, Vasudevanpillai Biju</u>
P19	<b>The Role of Iodide Vacancy on Blinking of Lead Iodide Perovskite Single Nanocrystals</b> <u>Lata Chouhan, Vasudevanpillai Biju</u>
P20	<b>Bandgap Modification at Specific Sites of Lead Halide Perovskite by Local Halide Exchange Reaction under Laser Trapping</b> <u>Md Shahjahan, Md Jahidul Islam, Ken-ichi Yuyama, Vasudevanpillai Biju</u>
P21	<b>Photon Recycling through Close-packed Energy Donor-Acceptor Interfaces in Perovskite Pellets</b> <u>Sankaramangalam Balachandran Bhagyalakshmi, Sushant Ghimire, Kiyonari Takahashi, Ken-ichi Yuyama, Yuta Takano, Takayoshi Nakamura, Vasudevanpillai Biju</u>
P22	<b>The Control of Bandgap and Exciton Lifetime in Perovskite Crystallites by the Mechanical Deformation.</b> <u>Zhijing Zhang, Sushant Ghimire, Vasudevanpillai Biju</u>
P23	<b>Evaluation of the Coupling between Perovskite Exciton and Gold Plasmon in Films and Cavities</b> <u>Bhagyashree Mahesha Sachith, Azusa Onishi, Hiroaki Misawa, Vasudevanpillai Biju</u>
P24	<b>Quantum Dot-Folic Acid Conjugate for Analyzing Cell-to-Cell Communication In Vitro</b> <u>Sobhanan Jeladhara, Yuta Takano, Vasudevanpillai Biju</u>
P25	<b>The Influence of Bi-Cu Microstructure on the Photoelectrochemical Performance of BiVO<sub>4</sub> Photoanode on Water Splitting</b> <u>Palyam Subramanyam, Vasudevanpillai Biju, Ch. Subrahmanyam</u>
P26	<b>The Effect of Plasmonic Gold Nanoparticles on the Photoluminescence of Perovskites</b> <u>Katta Venkata Seshaiyah, Lata Chouhan, Vasudevanpillai Biju, Sai Santhosh Kumar</u>
P27	<b>Photoresponsive DNA Nanotubes for Nanotechnological Applications</b> <u>Ammathnadu S. Amrutha, Nobuyuki Tamaoki</u>
P28	<b>Development of the Photoswitchable Anti-mitotic Drug</b> <u>Kazuya Matsuo, Noushaba Nusrut Mafy, Shota Hiruma, Ryota Uehara, Nobuyuki Tamaoki</u>
P29	<b>A Series of Bisamide-substituted Diacetylenes with a Mechano-Photoresponsive Property for Patterning Applications</b> <u>Jiajun Qi, Yuna Kim, Nobuyuki Tamaoki</u>
P30	<b>Proteorhodopsin Driven by Photoisomerization of Azobenzene Derivatives</b> <u>Shariful Haque, Takashi Kikukawa, Nobuyuki Tamaoki</u>
P31	<b>Tetrazine Derivatives Exhibiting Mesomorphism-dependent Emission Properties</b> <u>Yuna Kim, Cl�mence Allain, Pierre Audebert, Nobuyuki Tamaoki</u>
P32	<b>Mechanical Simulation for Waveguides for Multi-striped Orthogonal Photon-Photocarrier Propagation Solar Cells</b> <u>Jiaxing YU, Y. Ohkura, N. Sawamura, A. Ishibashi</u>
P33	<b>A Study of Topological Hall Effects and Topological Spin Hall Effects Caused by a Skyrmion</b> <u>Yuichi Ishida, Kenji Kondo</u>
P34	<b>Electric Field Thermopower Modulation Analyses of High Mobility Transparent Amorphous SnO<sub>2</sub> Thin Film Transistor</b> <u>Dou-dou Liang, Yu-qiao Zhang, Hai Jun Cho, Hiromichi Ohta</u>
P35	<b>Systematic Investigation of Thermoelectric Properties in Sr<sub>1-x</sub>La<sub>x</sub>TiO<sub>3</sub> Solid-solutions</b>

	<u>Kenyu Sugo</u> , Yu-qiao Zhang, Hai Jun Cho, Hiromichi Ohta
<b>P36</b>	<b>Fabrication and Thermopower Modulation of Thin Film Transistor using Deep-Ultraviolet Transparent Oxide Semiconductor as Active Layer</b> <u>Gong Lizhikun</u> , Dou-dou Liang, Mian Wei, Hai Jun Cho, Hiromichi Ohta
<b>P37</b>	<b>Epitaxial Film Growth of a Deep-Ultraviolet Transparent Oxide Semiconductor, La-Doped SrSnO<sub>3</sub></b> <u>Mian Wei</u> , Anup V. Sanchela, Bin Feng, Yuichi Ikuhara, Hai Jun Cho, Hiromichi Ohta
<b>P38</b>	<b>Macroscopic Visualization of Fast Electrochemical Reaction of SrCoO<sub>x</sub> Oxygen Sponge</b> <u>Qian Yang</u> , Hai Jun Cho, Hyoungjeen Jeon, Hiromichi Ohta
<b>P39</b>	<b>Effect of Heat Treating on Electronic and Structural Properties of Lightly Doped Epitaxial La<sub>x</sub>Ba<sub>1-x</sub>SnO<sub>3</sub> Films</b> <u>Takashi Fujimoto</u> , Hai Jun Cho, Hiromichi Ohta
<b>P40</b>	<b>Thermal Conductivity of Layered Cobalt Oxide Epitaxial Films with Different Crystallographic Orientation</b> <u>Yugo Takashima</u> , Takaki Onozato, Hai Jun Cho, Hiromichi Ohta
<b>P41</b>	<b>Thermal Conductivity of InGaO<sub>3</sub>(ZnO)<sub>m</sub> (m = integer) Natural Superlattice</b> <u>Yuzhang Wu</u> , Hai Jun Cho, Bin Feng, Masashi Mikami, Woosuck Shin, Yuichi Ikuhara, Keiji Saito, Hiromichi Ohta
<b>P42</b>	<b>pH-induced Changes in Gold Nanorod Orientation on Polymer Brush Substrates</b> Yu Sekizawa, Hideyuki Mitomo, Satoshi Nakamura, Yusuke Yonamine, <u>Kuniharu Ijiro</u>
<b>P43</b>	<b>A Novel Approach for Tuning of Assembly Temperature of Thermo-responsive Gold Nanoparticles</b> Yier Shi, <u>Hideyuki Mitomo</u> , Yusuke Yonamine, Kuniharu Ijiro
<b>P44</b>	<b>Enhanced Hot-Electron Transfer under Modal Strong Coupling Conditions with Sacrificial Electron Donors</b> <u>Yanfeng Cao</u> , Tomoya Oshikiri, Xu Shi, Hiroaki Misawa
<b>P45</b>	<b>Injection Compression Molding of Transmission-Type Fano Resonance Biochips for Multiplex Sensing Applications</b> <u>Kuang-Li Lee</u> , Meng-Lin You, Xu Shi, Yi-Ru Li, Kosei Ueno, Hiroaki Misawa, Pei-Kuen Wei
<b>P46</b>	<b>Influence of Particle Density on Modal Strong Coupling between Localized Surface Plasmon and Fabry-Perot Nanocavity Modes</b> <u>Yen-En Liu</u> , Xu Shi, Quan Sun, Tomoya Oshikiri, Kosei Ueno, Hiroaki Misawa
<b>P47</b>	<b>Revealing Plasmon Coupling in Plasmonic Dimers and One-Dimensional Chains Directly from the Near Field</b> <u>Quan Sun</u> , Yaolong Li, Shuai Zu, Xu Shi, Oshikiri Tomoya, Kosei Ueno, Qihuang Gong, Hiroaki Misawa
<b>P48</b>	<b>Plasmon-induced Photocurrent Generation on Ga<sub>2</sub>O<sub>3</sub> Loaded with Gold Nanoparticles</b> <u>Yaguang Wang</u> , Xu Shi, Tomoya Oshikiri, Kosei Ueno, Hiroaki Misawa
<b>P49</b>	<b>Plasmon-Induced Energetic Electron Transfer in Modal Strong Coupling Regime</b> <u>X. Shi</u> , G. He, T. Oshikiri, Q. Sun, K. Ueno, H. Misawa
<b>P50</b>	<b>Surface enhanced Raman Scattering Using Modal Strong Coupling</b> <u>Zang Xiaoqian</u> , Kosei Ueno, Xu Shi, Tomoya Oshikiri, Hiroaki Misawa
<b>P51</b>	<b>Thermal Stability of Proton Conductive Phosphate Glasses Containing Rare Earth Elements</b> <u>T. Fang</u> , T. Tatebayashi, M. Fujioka, H. Kaiju, Y. Ren, G. Zhao, M. Jeem, M. Ono, J. Nishii
<b>P52</b>	<b>Junction Area and Bias Voltage Dependence of MR Ratio in Ni<sub>78</sub>Fe<sub>22</sub>/Mq<sub>3</sub> (M=Al, Er)/Ni<sub>78</sub>Fe<sub>22</sub> Nanoscale Junction Devices Utilizing Magnetic Thin-film Edges</b> <u>Yuma Sasaki</u> , Robin Msiska, Takahiro Misawa, Sumito Mori, Takashi Komine, Norihisa Hoshino, Tomoyuki Akutagawa, Masaya Fujioka, Melbert Jeem, Madoka Ono, Junji Nishii,

	Hideo Kaiju
<b>P53</b>	<b>Synthesis, Structure, and Characterization of Dodecaazatrinaphthylene Derivatives</b> <u>Qin Ji</u> , Ichiro Hisaki, Kiyonori Takahashi, Takayoshi Nakamura
<b>P54</b>	<b>Crystal Polymorphs and Physical Properties of (4-aminopyridinium) (dibenzo[24]crown-8)[Ni(dmit)<sub>2</sub>]<sup>-</sup></b> <u>Simin Li</u> , Kiyonori Takahashi, Jiabing Wu, Ichiro Hisaki, Takayoshi Nakamura
<b>P55</b>	<b>Interplay between Epidermal Stem Cell Dynamics and Dermal Deformation</b> <u>Yasuaki Kobayashi</u> , Yusuke Yasugahira, Hiroyuki Kitahata, Mika Watanabe, Ken Natsuga, Masaharu Nagayama
<b>P56</b>	<b>Mathematical Model for the Epidermis</b> <u>Kota Ohno</u>
<b>P57</b>	<b>Inverse Source Problems for Time-Fractional Evolution Equations</b> <u>Yikan Liu</u>
<b>P58</b>	<b>Classification Bandit from the Numbers of Bad and Good Arms with Imperfect Loss Feedbacks</b> <u>Koji Tabata</u> , Atsuyoshi Nakamura, Tamiki Komatsuzaki
<b>P59</b>	<b>A Computational Method for Reaction Tubes based on Trajectory Calculation and Voronoi Tessellation</b> Mikoto Takigawa, Saki Miyashita, <u>Yuta Mizuno</u> , Hiroshi Teramoto, Tamiki Komatsuzaki
<b>P60</b>	<b>Physical Mechanisms Behind High Speed Jump of Nematode <i>Caenorhabditis Elegans</i></b> <u>Takuya Chiba</u> , T. Sugi, Y. Nishigami, T. Nakagaki, K. Sato
<b>P61</b>	<b>Asymmetric Patterns Appearing in Collective Photobehavior of <i>Chlamydomonas</i></b> <u>Kosuke Iizuka</u> , Ken-ichi Wakabayashi, Ritsu Kamiya, Yukinori Nishigami, Toshiyuki Nakagaki, Katsuhiko Sato
<b>P62</b>	<b>Semiconductor Single Photon Source with a Metal Reflector</b> <u>Satoru Odashima</u> , Hirotaka Sasakura, Yasutaka Matsuo