

# Program

**December 17th, 2012 (Monday)** (*Laboratory of Advanced Research B, Room: B0110*)

9:00-9:25 Registration

9:25-9:40 **Opening Remarks:**

**Masafumi Akahira** (*Vice President of University of Tsukuba*)

**OP-1**

**Tatsuya Nabeshima** (*University of Tsukuba*)

Research and Perspectives in Tsukuba Research Center for Interdisciplinary Materials Science (TIMS)

**OP-2**

**Kuang-Chien Hsieh** (*National Tsing Hua University*)

Research of Nanoscience and Nanotechnology at National Tsing Hua University

*Chair: Junji Nakamura (University of Tsukuba)*

9:40-10:00

**IL-1**

**Yutaka Moritomo** (*University of Tsukuba*)

Nanoporous System as Cathode Material of Li<sup>+</sup> Secondary Battery

10:00-10:20

**IL-2**

**Rong-Ming Ho** (*National Tsing Hua University*)

Functional Nanomaterials from Templating of Self-assembled Chiral Block Copolymers

10:20-10:40

**IL-3**

**Shin-ichi Adachi** (*Institute of Materials Structure Science High Energy Accelerator Research Organization (KEK)*)

Probing Materials Dynamics at Photon Factory, KEK

10:40-11:00

*Break (Conference Room B108)*

*Chair: Rong-Ming Ho (National Tsing Hua University)*

11:00-11:20

**IL-4**

**Jer-Shing Huang** (*National Tsing Hua University*)

Optical Antennas and Plasmonic Circuits for Controlling Nanoscale Light-Matter Interaction

11:20-11:40

**IL-5**

**Masaki Yamamura** (*University of Tsukuba*)

- Typical Element Complexes of  $\pi$ -Conjugated Dipyrin Ligands: Highly Luminescent Materials Responsive to an External Environment
- 11:40-12:00 **IL-6**  
**Tri-Rung Yew** (*National Tsing Hua University*)  
Liquid TEM for Living Cells and Nanoparticle Observation
- 12:00-12:10 *Group Photo*
- 12:10-13:10 *Lunch*
- 13:10-14:40 **Poster Session**  
(*Conference Room B0112*)
- 14:40-15:00 *Break (Conference Room B108)*
- 15:00-15:20 *Chair: Tatsuo Arai (University of Tsukuba)*  
**IL-7**  
**Masaaki Nakamoto** (*University of Tsukuba*)  
 $\sigma$ - $\pi$  Conjugation in Highly Strained Hydrocarbons: Properties of Functionalized Tetrahedranes
- 15:20-15:40 **IL-8**  
**Yu-Lun Chueh** (*National Tsing Hua University*)  
Low-Dimensional Nanoscale Electronic and Photonic Devices
- 15:40-16:00 **IL-9**  
**Yohei Yamamoto** (*University of Tsukuba*)  
Self-Assembly and Optoelectronic Properties of  $\pi$ -Conjugated Molecules and Polymers
- 16:00-16:20 *Break (Conference Room B108)*
- 16:20-16:40 *Chair: Takaki Kanbara (University of Tsukuba)*  
**IL-10**  
**Tatsuo Arai** (*University of Tsukuba*)  
Photochemistry of Functionalized Molecules
- 16:40-17:00 **IL-11**  
**Shih-Yuan Lu** (*National Tsing Hua University*)  
Applications of Mesoporous Materials in Energy
- 17:00-17:20 **IL-12**  
**Jun-ichi Fujita** (*University of Tsukuba*)  
Catalytic Mechanism of Ga/C Interfacial Graphitization and its Application
- 18:30-20:30 **Banquet** (Cafe Terrace "CAMELLIA" in OKURA FRONTIER HOTEL TSUKUBA)

**December 18th, 2012 (Tuesday)** (*Laboratory of Advanced Research B, Room: B0110*)

- 9:30-9:50 **IL-13**  
*Chair: Chenhsin Lien (National Tsing Hua University)*  
**Katsuhiro Akimoto (University of Tsukuba)**  
Defect Characterization of Cu(In,Ga)Se<sub>2</sub> Grown by Three Step Method
- 9:50-10:10 **IL-14**  
**Yasuhiro Hatsugai (University of Tsukuba)**  
Fun of Graphene for Physicists
- 10:10-10:30 **IL-15**  
**Jeng-Chung Chen (National Tsing Hua University)**  
Ultrafast Carrier Dynamics of Non-thermal Hot Electrons and Disorder-induced Scattering in Chemical Vapor Deposited Graphene
- 10:30-10:50 **IL-16**  
**Junji Nakamura (University of Tsukuba)**  
Landau Level Observation in K Doped Graphite
- 10:50-11:10 *Break (Conference Room B108)*
- 11:10-11:30 **IL-17**  
*Chair: Jun-ichi Fujita (University of Tsukuba)*  
**Wen-Kuang Hsu (National Tsing Hua University)**  
Electrically Controllable Strength of CNT/polymer Composites: From Rigid to Damping and Rubber Phase
- 11:30-11:50 **IL-18**  
**Tadahiro Fujitani (National Institute of Advanced Industrial Science and Technology (AIST))**  
CO Oxidation over Au/TiO<sub>2</sub> Model Catalyst
- 11:50-12:10 **IL-19**  
**Chenhsin Lien (National Tsing Hua University)**  
Challenges and Opportunities for HfO<sub>x</sub> Based Resistive Random Access Memory
- 12:10-12:30 **Closing Remarks:**  
**Junji Nakamura (University of Tsukuba)**

# Poster Presentation Program

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- P-1 Yu Ohmori, Masaaki Ichinohe, Akira Sekiguchi**  
*Department of Chemistry, Graduate School of Pure and Applied Sciences, University of Tsukuba*  
**Synthesis of Unsaturated Si<sub>3</sub>C Four-membered Rings via the Reaction of Cyclotrisilene with Isocyanides**
- P-2 Yuzuru Kobayashi, Masaaki Nakamoto, Akira Sekiguchi**  
*Department of Chemistry, University of Tsukuba*  
**Novel Synthesis of Functionalized Tetrahedranes, and Their Structures and Reactivities**
- P-3 Taichi Kitagawa, Masahisa Endo, Masaaki Nakamoto, Akira Sekiguchi**  
*Department of Chemistry, Graduate School of Pure and Applied Sciences, University of Tsukuba*  
**New Heavy Elements Cyclic  $\pi$  System; Synthesis and Structure of 1,3-disilacyclobutadiene**
- P-4 Katsuhisa Murakami,<sup>1,2</sup> Konomi Yoshida,<sup>1</sup> Ryuichi Ueki,<sup>1,2</sup> and Jun-ichi Fujita<sup>1,2</sup>**  
<sup>1</sup>*Institute of Applied Physics, University of Tsukuba,*  
<sup>2</sup>*Tsukuba Research Center for Interdisciplinary Materials Science, University of Tsukuba,*  
**Fabrication of a Mechanically Exfoliated Graphene Edge Emitter on a Tungsten Probe and its Field Emission Properties**
- P-5 Takuya Kadowaki,<sup>1,2</sup> Katsuhisa Murakami,<sup>1,2</sup> and Jun-ichi Fujita<sup>1,2</sup>**  
<sup>1</sup>*Institute of Applied Physics, University of Tsukuba,*  
<sup>2</sup>*Tsukuba Research Center for Interdisciplinary Materials Science (TIMS),*  
**Effects of internal strain induced by low-energy electron beam irradiation on grapheme**
- P-6 T. Dong,<sup>1,2</sup> R. Ueki,<sup>1,2</sup> Y. Kajiwara,<sup>1,2</sup> E. Takai,<sup>2</sup> Y. Shikiya,<sup>2</sup> K. Shiraki,<sup>2</sup> Y. Yamada,<sup>2</sup> K. Murakami<sup>1,2</sup> and J. Fujita<sup>1,2</sup>**  
<sup>1</sup>*Tsukuba Research Center for Interdisciplinary Materials Science,*  
<sup>2</sup>*University of Tsukuba, Institute of Applied Physics,*  
**Synthesis of Graphene Nanoribbons from Amyloid Template on Sapphire Substrate by Liquid Gallium Graphitization**
- P-7 Emi Kano,<sup>1,2</sup> Sotaro Akiyama,<sup>1</sup> Ryuichi Ueki,<sup>1,2</sup> Teppei Takahashi,<sup>1,2</sup> Katsuhisa Murakami,<sup>1,2</sup> and Jun-ichi Fujita<sup>1,2</sup>**  
<sup>1</sup>*Institute of Applied Physics, University of Tsukuba,*  
<sup>2</sup>*Tsukuba Research Center for Interdisciplinary Materials Science, University of Tsukuba,*  
**Production of Graphene Films by Simple Electrochemical Exfoliation using NaCl Solution**
- P-8 Hiroyuki Ishii,<sup>1,2</sup> Tatsuya Fukami,<sup>1</sup> Nobuhiko Kobayashi,<sup>1</sup> Takafumi Uemura,<sup>3</sup> Jun-ichi Takeya<sup>3</sup> and Kenji Hirose<sup>4</sup>**  
<sup>1</sup>*Institute of Applied Physics and Tsukuba Research Center for Interdisciplinary Material Science, University of Tsukuba,*  
<sup>2</sup>*JST, PRESTO,*

<sup>3</sup> ISIR, Osaka University,

<sup>4</sup> Green Innovation Research Laboratories, NEC Corporation

**Wave-Packet Approach to Charge Transport Properties of Single-Crystal Organic Semiconductors**

**P-9** T. Fukami,<sup>1</sup> H. Ishii,<sup>1</sup> N. Kobayashi,<sup>1</sup> T. Uemura,<sup>2</sup> J. Takeya,<sup>2</sup> and K. Hirose<sup>3</sup>

<sup>1</sup> University of Tsukuba, Ibaraki, Japan

<sup>2</sup> Osaka University, Osaka, Japan

<sup>3</sup> NEC, Ibaraki, Japan

**Ab initio calculations of intermolecular interactions in single-crystal organic semiconductors**

**P-10** Sho Tanaya,<sup>1</sup> Yuji Hamamoto,<sup>1</sup> Satoru Konabe,<sup>1,2</sup> Kenji Shiraishi,<sup>1,3</sup> and Yasuhiro Hatsugai<sup>1,4</sup>

<sup>1</sup> Graduate School of Pure and Applied Sciences, University of Tsukuba,

<sup>2</sup> CREST, Japan Science and Technology Agency,

<sup>3</sup> Center for Computational Science, University of Tsukuba,

<sup>4</sup> Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba,

**Edge states of graphene and silicene ribbons using a multi-orbital tight-binding model**

**P-11** Risa Sumi,<sup>1</sup> Yuji Hamamoto,<sup>1</sup> and Yasuhiro Hatsugai<sup>1,2</sup>

<sup>1</sup> Institute of Physics, University of Tsukuba,

<sup>2</sup> Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba,

**Electronic structure of twisted bilayer grapheme**

**P-12** Hikari Tomori,<sup>1,2</sup> Yosuke Nukui,<sup>1,2</sup> Kenta Katakura,<sup>1,2</sup> Youiti Ootuka,<sup>1</sup> and Akinobu Kanda<sup>1,2</sup>

<sup>1</sup> Division of Physics, Faculty of Pure and Applied Sciences, University of Tsukuba,

<sup>2</sup> Tsukuba Research Center for Interdisciplinary Materials Science (TIMS) University of Tsukuba,

**Strain Engineering of Graphene through a Nanostructured Substrate**

**P-13** Masaki Yamamura,<sup>1,2</sup> Michio Shimamura,<sup>1</sup> Shinya Yazaki,<sup>2</sup> and Tatsuya Nabeshima<sup>1,2</sup>

<sup>1</sup> Tsukuba Research Center for Interdisciplinary Materials Science (TIMS)

<sup>2</sup> Graduate School of Pure and Applied Sciences, University of Tsukuba

**Cellular Staining Using Red/Near-infrared Fluorescent BODIPYs Bearing a Water-soluble Tag**

**P-14** Fengniu Lu,<sup>2</sup> Masaki Yamamura,<sup>1,2</sup> Tatuya Nabeshima<sup>1,2</sup>

<sup>1</sup> Tsukuba Research Center for Interdisciplinary Materials Science (TIMS)

<sup>2</sup> Graduate School of Pure and Applied Sciences, University of Tsukuba,

**Luminescent Biscyclometalated Iridium(III) complex for Selective and Switchable Detection of Cu<sup>2+</sup> Ion in Aqueous Media<sup>[1]</sup>**

**P-15** Seira Ikuma,<sup>2</sup> Masaki Yamamura,<sup>1,2</sup> Tatuya Nabeshima<sup>1,2</sup>

<sup>1</sup> Tsukuba Research Center for Interdisciplinary Materials Science (TIMS)

<sup>2</sup> Graduate School of Pure and Applied Sciences, University of Tsukuba

**Synthesis and Spectral Properties of Acridine-based  $\pi$ -Conjugated Oligomers**

- P-16** Junji Uchida,<sup>2</sup> Masaki Yamamura,<sup>1,2</sup> and Tatsuya Nabeshima<sup>1,2</sup>  
<sup>1</sup>*Tsukuba Research Center for Interdisciplinary Materials Science (TIMS)*  
<sup>2</sup>*Graduate School of Pure and Applied Sciences, University of Tsukuba,*  
**Synthesis and Cation Recognition of N2O2-type Dipyrrin Aluminum Complex (ALDIPY)**
- P-17** Kotaro Kanazawa,<sup>2</sup> Masaya Iida,<sup>2</sup> Masaki Yamamura<sup>1,2</sup> and Tatsuya Nabeshima<sup>1,2</sup>  
<sup>1</sup>*Tsukuba Research Center for Interdisciplinary Materials Science (TIMS)*  
<sup>2</sup>*Graduate School of Pure and Applied Sciences, University of Tsukuba,*  
**Synthesis of Triangular Trisaloph Zn<sub>7</sub> and Zn<sub>3</sub>La Complexes by Utilizing the Template Effect**
- P-18** Yusuke Yamaki,<sup>2</sup> Masaki Yamamura,<sup>1,2</sup> Tatsuya Nabeshima<sup>1,2</sup>  
<sup>1</sup>*Tsukuba Research Center for Interdisciplinary Materials Science (TIMS)*  
<sup>2</sup>*Graduate School of Pure and Applied Sciences, University of Tsukuba,*  
**Guest Recognition of Novel Molecular Clefs Bearing Extended  $\pi$ -Conjugated Thiolato(dipyridoacridine) Platinum(II) Complex Moieties**
- P-19** Wataru Kobayashi,<sup>1,2</sup> and Yutaka Moritomo<sup>1,2</sup>  
<sup>1</sup>*Graduate School of Pure and Applied Sciences, University of Tsukuba,*  
<sup>2</sup>*Tsukuba Research Center for Interdisciplinary Materials Science (TIMS)*  
**Thermoelectric properties of transition-metal oxides with low dimensionality**
- P-20** Wataru Kobayashi,<sup>1,2</sup> Takahiro Shimono,<sup>1</sup> Daiki Tanabe,<sup>1</sup> Taiki Hirano,<sup>1</sup> Noriaki Hamada<sup>3</sup> and Yutaka Moritomo<sup>1,2</sup>  
<sup>1</sup>*Graduate School of Pure and Applied Sciences, University of Tsukuba,*  
<sup>2</sup>*Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba,*  
<sup>3</sup>*Faculty of Science and Technology, Tokyo University of Science,*  
**Structural Investigation of Layered Rock-Salt Na<sub>0.7</sub>M<sub>y</sub>Mn<sub>1-y</sub>O<sub>2</sub> (M=Fe, Co)**
- P-21** Takayuki Shibata,<sup>1</sup> Wataru Kobayashi,<sup>1,2</sup> and Yutaka Moritomo<sup>1,2</sup>  
<sup>1</sup>*Graduate School of Pure and Applied Sciences, University of Tsukuba,*  
<sup>2</sup>*Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), University of Tsukuba,*  
**Thermal Hall Effect in Antimony**
- P-22** Kouhei Yonezawa,<sup>1</sup> Hayato Kamioka,<sup>1,2</sup> Takeshi Yasuda,<sup>3</sup> Liyuan Han,<sup>3</sup> and Yutaka Moritomo<sup>1,2</sup>  
<sup>1</sup>*Graduate School of Pure and Applied Science, University of Tsukuba*  
<sup>2</sup>*Tsukuba Research Center for Interdisciplinary Materials Science (TIMS)*  
<sup>3</sup>*Photovoltaic Materials Unit, National Institute for Materials Science (NIMS)*  
**Charge generation dynamics in Low-Gap Organic Photovoltaic**
- P-23** Masamitsu Takachi,<sup>1</sup> Tomoyuki Matsuda,<sup>1</sup> Yutaka Moritomo<sup>1,2</sup>  
<sup>1</sup>*Graduate School of Pure and Applied Science, Univ. of Tsukuba, Tsukuba,*  
<sup>2</sup>*Tsukuba Research Center for Interdisciplinary Materials Science (TIMS), Univ. of Tsukuba,*  
**Electronic phase transition driven by electrochemical Li<sup>+</sup>-doping in cobalt hexacyanoferrate**

- P-24** Natsuko Uchida, Ruoxi Zhi, Junpei Kuwabara and Takaki Kanbara  
*Tsukuba Research Center for Interdisciplinary Materials Science (TIMS),  
 Graduate School of Pure and Applied Sciences, University of Tsukuba,*  
**One-step synthesis of azacalix[3]pyridine derivatives and their applications for  
 organic superbase catalysts**
- P-25** Seong Jib Choi,<sup>1</sup> Junpei Kuwabara,<sup>1</sup> Takaki Kanbara<sup>1</sup>  
<sup>1</sup>*TIMS, Graduate School of Pure and Applied Sciences, University of Tsukuba,*  
**Microwave-Assisted Direct Arylation Polycondensation for Synthesis of  
 EDOT-based Polymer**
- P-26** Mari Watanabe,<sup>1,2</sup> and Masashi Kijima<sup>2,3</sup>  
<sup>1</sup>*Institute of Materials Science, Graduate school of Pure and Applied Sciences,<sup>2</sup> TIMS,<sup>3</sup>  
 Faculty of Pure and Applied Sciences, University of Tsukuba,*  
**Polythiophenes bearing naphthalene side groups**
- P-27** Toru Nakayama,<sup>1</sup> Kentaro Tashiro,<sup>2</sup> and Yohei Yamamoto<sup>1</sup>  
<sup>1</sup>*Division of Materials Science and TIMS, Faculty of Pure and Applied Sciences,  
 University of Tsukuba,*  
<sup>2</sup>*Institute of National Institute for Materials Science,*  
**Fmoc-Induced  $\beta$ -Sheet Formation by Self-Assembly of Designed Oligopeptides**
- P-28** Kenichi Tabata,<sup>1</sup> Takayuki Sasaki,<sup>1</sup> and Yohei Yamamoto<sup>1,2</sup>  
<sup>1</sup>*Division of Materials Science and TIMS, Faculty of Pure and Applied Sciences,  
 University of Tsukuba,*  
**Magnetic-Field-Induced Orientation and Enhanced Field-Effect Mobilities of  
 Organic Semiconductor Thin Films**
- P-29** Liang Tong,<sup>1</sup> Taeko Adachi,<sup>1</sup> Junpei Kuwabara,<sup>1,2</sup>  
 Takaki Kanbara,<sup>1,2</sup> Yohei Yamamoto<sup>1,2</sup>  
<sup>1</sup>*Division of Materials Science and TIMS, Faculty of Pure and Applied Sciences,  
 Univ. of Tsukuba,*  
**Self-Assembly of  $\pi$ -Conjugated Alternating Copolymers into Spherical  
 Nanostructures**
- P-30** Donghui Guo, Takahiro Kondo, Takahiro Machida, Keigo Iwatake,  
 Susumu Okada, Junji Nakamura  
*Faculty of Pure and Applied Sciences, University of Tsukuba,*  
**Observation of Landau levels of massless Dirac fermions in partially  
 potassium-intercalated graphite without external magnetic field**
- P-31** Jiamei Quan, Masataka Sakurai, Tatsuo Matsushima, Takahiro Kondo,  
 Junji Nakamura  
*Faculty of Pure and Applied Sciences, University of Tsukuba,*  
**Sharp Angular Distribution of Desorbing CO<sub>2</sub> in Decomposition of Formate on  
 Cu(111) surface**
- P-32** Jiuchao Dong,<sup>1</sup> Kohsuke Kawabata,<sup>1</sup> and Hiromasa Goto<sup>2</sup>  
<sup>1</sup>*Graduate School of Pure and Applied Sciences,<sup>2</sup> Division of Materials Science,  
 Faculty of Pure and Applied Sciences, University of Tsukuba*  
**Thieno[3,2-b]thiophene-based dichroic fluorescent liquid crystals**

- P-33** Xianjia Luo, Takeaki Sakurai, and Katsuhiko Akimoto  
*Institute of Applied Physics, University of Tsukuba*  
**Off-Resonant Upconversion in NaYF<sub>4</sub>:Er<sup>3+</sup>/NaYF<sub>4</sub> Nanocrystals**
- P-34** Shenghao Wang,<sup>1</sup> Takeaki Sakurai,<sup>1,2</sup> Wei Fu<sup>1</sup>, Katsuhiko Akimoto<sup>1</sup>  
<sup>1</sup>*Institute of Applied Physics, University of Tsukuba,*  
<sup>2</sup>*PRESTO, Japan Science and Technology Agency (JST),*  
**Study on the Electronic Properties of Bathocuproine/Mg Interface for Organic Solar Cells by Synchrotron Radiation**
- P-35** Donghyun Son,<sup>1</sup> Kazuhiro Marumoto,<sup>1,2</sup> and Yukihiro Shimoi<sup>3</sup>  
<sup>1</sup>*Division of Materials Science, University of Tsukuba,*  
<sup>2</sup>*Japan Science and Technology Agency (JST), PRESTO,*  
<sup>3</sup>*Nanosystem Research Institute (NRI), National Institute of Advanced Industrial Science and Technology (AIST)*  
**Charge carrier states of Mg-doped Alq<sub>3</sub> thin films as investigated by electron spin resonance**
- P-36** Y. Takahashi,<sup>1</sup> M. Tsuji,<sup>1</sup> Y. Yomogida,<sup>2</sup> T. Takenobu,<sup>3,4</sup> Y. Iwasa,<sup>5</sup> and K. Marumoto<sup>1,4</sup>  
<sup>1</sup>*Univ. of Tsukuba, Tsukuba, Japan*  
<sup>2</sup>*Tohoku Univ., Sendai, Japan*  
<sup>3</sup>*Waseda Univ., Tokyo, Japan*  
<sup>4</sup>*JST PRESTO, Kawaguchi, Japan*  
<sup>5</sup>*Univ. of Tokyo*  
**Microscopic evaluation of ion gel-gated rubrene single-crystal electric double-layer transistors by electron spin resonance**
- P-37** Dong Liu,<sup>1</sup> Tatsuya Nagamori,<sup>1</sup> and Kazuhiro Marumoto<sup>1,2</sup>  
<sup>1</sup>*Division of Materials Science, Univ. of Tsukuba,*  
<sup>2</sup>*JST PRESTO,*  
**Electron Spin Resonance Investigation of Charge Transfer at Cathode Electrodes in Organic Thin-Film Solar Cells**
- P-38** Satoshi Nakazato, Tatsuo Arai  
*Graduate School of Pure and Applied Sciences, University of Tsukuba*  
**Conformational control and photochemical characteristics of dendrimers with 1,2-bis(naphthyl) ethene core by hydrophilic environment**
- P-39** Takuya Honda, Atsuya Momotake, and Tatsuo Arai  
*Graduate School of Pure and Applied Sciences, University of Tsukuba*  
**Water-soluble photolabile precursor of carboxylic acids toward caged compound**
- P-40** Takuya Kobayashi, Tatsuo Arai<sup>1</sup>  
<sup>1</sup>*Graduate School of Pure and Applied Sciences, University of Tsukuba*  
**Fluorescence and Photoisomerization Characteristics of New Olefinic Compounds Substituted by Heteroaromatic Rings**
- P-41** Chiu-Chun Tang,<sup>1</sup> Ming-Yang Li,<sup>1</sup> L. J. Li,<sup>2</sup> C. C. Chi,<sup>1</sup> and J. C. Chen<sup>1</sup>  
<sup>1</sup>*Department of Physics, National Tsing-Hua University, Hsinchu, 30013, Taiwan*  
<sup>2</sup>*Institute of Atomic and Molecular Sciences, Academia Sinica, Taipei 10617, Taiwan*  
**Characteristics of a sensitive micro-Hall probe fabricated on chemical vapor**

deposited graphene for temperature range from liquid-helium to room temperature

- P-42 **Sheng-Yi Lu, Hsin-Fu Kuo, and Wen-Kuang Hsu\***  
*National Tsing-Hua University,  
Department of Materials Science and Engineering, HsinChu, Taiwan*  
**Red-shift Enhanced Photocatalysis of TiO<sub>2</sub> coated Carbon Nanotubes**
- P-43 **Hong-Jie Yang<sup>1</sup> and Hsing-Yu Tuan\*<sup>1</sup>**  
<sup>1</sup>*Department of Chemical engineering, National Tsing-Hua University*  
**Synthesis of Germanium Nanowires by Metal–Organic Chemical Vapor Deposition and Their Applications**
- P-44 **Han-Yu Hsueh<sup>1</sup>, Hung-Ying Chen<sup>2</sup>, Yu-Chueh Hung<sup>3</sup>, Yi-Chun Ling<sup>3</sup>, Shangjr Gwo<sup>2</sup>, and Rong-Ming Ho\*<sup>1</sup>**  
<sup>1</sup>*Department of Chemical Engineering, National Tsing Hua University, Hsinchu 30013, Taiwan*  
<sup>2</sup>*Department of Physics, National Tsing Hua University, Hsinchu 30013, Taiwan*  
<sup>3</sup>*Institute of Photonics Technologies, National Tsing Hua University,*  
**Well-Defined Multibranch Gold with Surface Plasmon Resonance in Near-Infrared Region from Seeding Growth Approach Using Gyroid Block Copolymer Template**
- P-45 **Kuan-Ting Lee and Shih-Yuan Lu\***  
*Department of Chemical Engineering, National Tsing Hua University*  
**Porous FTO thin layers created with a facile one-step Sn<sup>4+</sup>-based anodic deposition process and their potential applications in ion sensing**
- P-46 **Bao-Hsien Wu<sup>1</sup>, Chia-Wei Hsu<sup>1</sup>, and Li-Jen Chou<sup>1</sup>**  
<sup>1</sup>*Department of Materials Science and Engineering, National Tsing Hua University*  
**Synthesis and Characterization of the Core-Shell Au/Ga<sub>2</sub>O<sub>3</sub> Nanowires**
- P-47 **Yu-Ting Yen, Yi-Chung Wang, Chia-Wei Chen, Hung-Wei Tsai, Yu-Ze Chen, Fan Hu, and Yu-Lun Chueh\***  
*Department of Materials Sciences and Engineering, National Tsing Hua University, Hsinchu*  
**Fabrication of CuIn(S,Se)<sub>2</sub> Nanotip Arrays Solar Cells based on Non-vacuum nanocrystal inks**
- P-48 **Yan-Xiang Luo,<sup>1,2</sup> Wei Chang,<sup>1</sup> Chun-Hsing Shih,<sup>2</sup> Wen-Fa Wu,<sup>3</sup> and Chenhsin Lien<sup>1</sup>**  
<sup>1</sup>*Institute of Electronics Engineering, National Tsing Hua University, Hsinchu, Taiwan*  
<sup>2</sup>*Department of Electrical Engineering, National Chi Nan University, Nantou, Taiwan*  
<sup>3</sup>*National Nano Device Laboratories*  
**Efficient and Reliable Schottky Barrier Silicon Nanowire SONOS Memory Cells**
- P-49 **Zhan-Hong Lin, Jer-Shing Huang**  
<sup>1</sup>*Department of Chemistry, National Tsing Hua University*  
**Enhanced circular dichroism by periodic plasmonic nanostructures**
- P-50 **Fan-Cheng Lin, Jer-Shing Huang**  
*Department of Chemistry, National Tsing Hua University*  
**Fano-like resonance on asymmetric stacked nanoantenna**

**P-51 Yao-Hsiang Chen,<sup>1</sup> Chien-Neng Liao,<sup>1</sup> and Hsu-Shen Chu<sup>2</sup>**

<sup>1</sup>*Department of Materials Science and Engineering, National Tsing Hua University, Hsinchu, Taiwan*

<sup>2</sup>*Material and Chemical Research Laboratories, Industrial Technology Research Institute, Hsinchu, Taiwan*

**Effects of Electrical Stressing on Thermoelectric Materials**

Program and Abstract of the 4<sup>th</sup> Tsukuba-Hsinchu Joint Symposium on  
Interdisciplinary Nano-Science and Technology

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