

2018 Joint Symposium on Energy Materials Science and Technology

(Workshop of Pre-Strategic Initiatives) 報告書

日時: 2018年3月8日(木)～9日(金)
場所: 筑波大学総合研究棟 B 0110 公開講義室、0112 講義室
懇親会: 2018年3月8日(木) “OKURA FRONTIER HOTEL TSUKUBA
(Cafe terrace CAMELLIA)”

◆参加者総数:	98名
招待講演者	18名
教員・一般研究者	33名
学生	47名
◆懇親会参加者	36名

《プログラム》

March 8th, 2018 (Thursday) (Lecture Room 0110)

Opening Remarks

9:00～9:05 **Tatsuya Nabeshima** (*TREMS, University of Tsukuba*)

Scientific Session

Chairman: **Tatsuya Nabeshima** (*TREMS, University of Tsukuba*)

9:05～9:20 **Junji Nakamura** (*TREMS, University of Tsukuba*)

IL-01 Catalytic Conversion of CO₂ to Methanol on Cu

9:20～9:50 **Stefanie Tjaberings, Andrea Steinhaus, Tai-Lam Nghiem, André H. Gröschel** (*CENIDE, University of Duisburg-Essen*)

IL-02 Block Copolymer Templates for Energy Applications

9:50～10:20 **Eunji Lee, Huiyeong Ju, Shim Sung Lee** (*Gyeongsang National University, Jinju, South Korea*)

IL-03 Calixcrowns versus Pillarcrowns: Old and New Ditopic Building Blocks in Supramolecular Coordination Chemistry

Chairman: **Yohei Yamamoto** (*TREMS, University of Tsukuba*)

10:35～10:50 **Yasuhiko Yamamoto Tomokazu Shibata, Yusaku Nakayama Ryosuke**

IL-04 **Shinomiya and Haruka Araki** (*TREMS, Department of Chemistry, TARA Center, University of Tsukuba*)

Characterization of Complexes between Heme and G-quadruplex DNAs

- 10:50~11:05 **Seiya Tsujimura** (*TREMS, University of Tsukuba*)
IL-05 Enzymatic Biofuel Cells
- 11:05~11:35 **Stefan Hecht** (*Humboldt University of Berlin*)
IL-06 Photoswitches to Control Materials and Devices
- 11:35~11:50 **Hisaki Sawahata, Mina Maruyama, and Susumu Okada** (*TREMS, University of Tsukuba*)
IL-07 Energetics and electronic structure of in-plane heterostructures of graphene and BN
- 11:50~13:10 **Poster Session and Lunch (Lecture Room 0112)**
Chairman: **Eiji Nishibori** (*TREMS, University of Tsukuba*)
- 13:10~13:25 **Yutaka Moritomo** (*TREMS, University of Tsukuba*)
IL-08 Thermal Power Generation in Heat Cycle near Room Temperature
- 13:25~13:55 **Martin Bremholm** (*Aarhus University*)
IL-09 Materials Chemistry and Structural Studies at High Pressure
- 13:55~14:10 **Hideto Yanagihara** (*TREMS, University of Tsukuba*)
IL-10 Strain-controlled Spinel Ferrites for New Permanent Magnets
Chairman: **Yasuhiko Yamamoto** (*TREMS, University of Tsukuba*)
- 14:25~14:50 **Yasuo Norikane** (*AIST*)
IL-11 Photoinduced Solid-liquid Phase Transition and Dynamic Motion of Azobenzene Crystals
- 14:50~15:05 **Takashi Nakamura, Yuya Kaneko, Tatsuya Nabeshima** (*TREMS, University of Tsukuba*)
IL-12 A Large Macrocyclic That Binds Molecules by Multipoint Metal-ligand Coordination
- 15:05~15:35 **Dana Westmeier, Shirley K. Knauer, and Roland Stauber** (*University of Mainz, University Duisburg-Essen*)
IL-13 Nanomaterial-based Antimicrobial Therapies: Principles and Limitations
Chairman: **Takaki Kanbara** (*TREMS, University of Tsukuba*)
- 15:50~16:20 **Galina Marzun, Ina Haxhijaj, Junji Nakamura, Takahiro Kondo, Xiaorui Zhang, and Stephan Barcikowski** (*CENIDE, University of Duisburg-Essen, University of Tsukuba*)
IL-14 Cansel
- 16:20~16:35 **Takahiro Kondo** (*TREMS, University of Tsukuba*)
IL-15 Hydrogen Boride Sheets Derived from MgB₂ by Cation Exchange
- 16:35~16:50 **Yohei Yamamoto** (*TREMS, University of Tsukuba*)
IL-16 Conjugated Organic/Polymer Microcavities for Optical Resonators and Lasers

Chairman: **Junji Nakamura** (*TREMS, University of Tsukuba*)
 16:50~17:15 **Kazunori Takada** (*NIMS*)
IL-17 Interfaces Governing the Performance of Solid-state Batteries
 17:15~17:30 **Takaki Kanbara** (*TREMS, University of Tsukuba*)
IL-18 Synthesis of Conjugated Polymers via C-H bond Functionalization Strategy
 17:30~18:00 **Dana Westmeier, Roland Stauber and Shirley K. Knauer** (*University
 Medical Center of Mainz, CENIDE, University of Duisburg-Essen*)
IL-19 Small Meets Smaller - Nanoparticle Microbiome Interactions
 19:00~ **Banquet**



Tatsuya Nabeshima



Junji Nakamura



André H. Gröschel



Shim Sung Lee



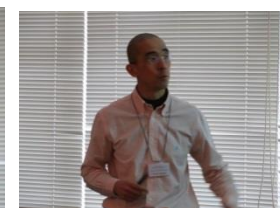
Yasuhiko Yamamoto



Seiya Tsujimura



Stefan Hecht



Susumu Okada



Yutaka Moritomo



Martin Bremholm



Hideto Yanagihara



Yasuo Norikane



Takashi Nakamura



Roland Stauber



Takahiro Kondo



Yohei Yamamoto



Kazunori Takada



Takaki Kanbara



Shirley K. Knauer

March 9th, 2018 (Friday) (Lecture Room 0110)

- Chairman: **Wataru Kobayashi** (*TREMS, University of Tsukuba*)
- 9:00~9:15 **Yasuhiro Hatsugai** (*TREMS, University of Tsukuba*)
- IL-20** New Paradigm of Topological Materials
- 9:15~9:40 **Ashraful Islam** (*NIMS*)
- IL-21** Perovskite Solar Cell for Next Generation Photovoltaics
- 9:40~10:05 **Chikashi Nishimura, Hideo Yoshinaga, Seiji Sakurai, Koji Nakagawa,**
- IL-22** **Hiroshi Yukawa, Yoshihisa Matsumoto** (*NIMS, Taiyo Koko Co. Ltd., Nagoya University, National Institute of Technology, Oita College, National Institute of Technology, Suzuka College*)
- Separation of High-purity Hydrogen Using Vanadium Alloy Membranes from Gas Mixtures of Nitrogen and Hydrogen
- 10:05~10:20 **Priyanka Jood, Michihiro Ohta, Mercouri G. Kanatzidis, Atsushi**
- IL-23** **Yamamoto** (*AIST, Northwestern University and Argonne National Laboratory*)
- High Efficiency Thermoelectric Materials and Modules from Nanostructured PbTe.
- Chairman: **Yasuhiro Hatsugai** (*TREMS, University of Tsukuba*)
- 10:35~10:50 **Eiji Nishibori, Hidetaka Kasai, Venkatesha Rama Hathwar, Bo Iversen**
- IL-24** (*TREMS, University of Tsukuba*)
- Accurate Charge Density Study for Quantum Crystallography
- 10:50~11:20 **Tsung-Yu Huang, Ruei-Han Jiang, Chi Chen, Ding-Zheng Lin, Jian-Hui**
- IL-25** **Lin, Tung Lee, He-Chun Chou, Jen-You Chu, Ta-Jen Yen** (*National Tsing Hua University, Industrial technology and research institute, Hsinchu, Research Center for Applied Sciences, Academia Sinica*)
- Seeing is Believing!? A super plasmonic probe and a Harry Potter's invisible cloak
- 11:20~11:50 **Jeppe Vang Lauritsen** (*Aarhus University*)
- IL-26** Scanning Tunneling Microscopy Studies of Metal Oxide Catalysts for

Electrochemical Water Splitting

- 11:50~13:10 **Poster Session and Lunch (Lecture Room 0112)**
Chairman: **Noriyuki Iwamuro** (*TREMS, University of Tsukuba*)
- 13:10~13:25 **Akira Uedono** (*TREMS, University of Tsukuba*)
IL-27 Study of Vacancy-type Defects in Materials for Widegap Semiconductor Devices by Using Positron Annihilation
- 13:25~13:55 **Jyh Ming Wu** (*National Tsing Hua University*)
IL-28 Piezo-Catalytic Effect on the Enhancement of the Ultra-High Degradation Activity in the Dark
- 13:55~14:25 **Gheeraert Etienne** (*University Grenoble Alpes*)
IL-29 Diamond electronic devices for power electronics
Chairman: **Masahiro Sasaki**
- 14:40~14:55 **Noriyuki Iwamuro, Junjie An, and Masaki Namai** (*TREMS, University of Tsukuba*)
IL-30 Investigation of Short-circuit Failure Mechanism of SiC MOSFETs
- 14:55~15:10 **Takahide Umeda, Mitsuo Okamoto, Ryouji Kosugi, Shinsuke Harada, Shinobu Onoda, Takeshi Ohshima, Noriyuki Taoka, Mitsu Shimizu, Hiromitsu Kato, Toshiharu Makino, Satoshi Yamasaki** (*TREMS, University of Tsukuba, AIST, QST*)
IL-31 Electron-spin-resonance Characterization on Wide-band-gap Semiconductor MOS interfaces
- 15:10~15:25 **Aboulaye Traore, Toshiharu Makino, Akira Nakajima, Hiromitsu Kato, Masohiko Ogura, Yukako Kato, Satoshi Yamasaki** (*AIST, University of Tsukuba*)
IL-32 Electrical Properties of High-voltage Diamond p-i-n diodes
- 15:25~15:55 **C. Vallée, and C. Mannequin** (*University Grenoble Alpes, University of Tsukuba*)
IL-33 Atomic Layer Processing for Next Generation of Microelectronic Devices
Chairman: **Noriyuki Iwamuro** (*TREMS, University of Tsukuba*)
- 16:10~16:25 **Ryu Hasunuma** (*TREMS, University of Tsukuba*)
IL-34 Characterization of SiO₂ Films on SiC
- 16:25~16:40 **Hiroshi Yano** (*University of Tsukuba*)
IL-35 Characterization and Control of Interface Properties in SiC MOSFETs
- 16:40~17:10 **Joel Bleuse, Yoann Curé, Frédérique Ducroquet, Louis Grenet and Henri Mariette** (*University Grenoble Alpes, CEA / INAC, Grenoble INP, CEA / LITEN, CNRS / Néel Institute*)
IL-36

Study of Potential Fluctuations in CZTSSe thin film solar cells by Optical and
Admittance Spectroscopy

17:10~

Closing Remarks

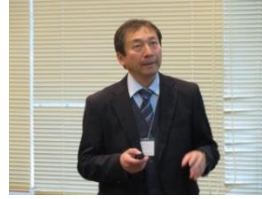
Yutaka Moritomo (*TREMS, University of Tsukuba*)



Yasuhiro Hatsugai



Ashraful Islam



Chikashi Nishimura



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Eiji Nishibori



Ta-Jen Yen



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