



Asia-Pacific International Conference on Perovskite, Organic Photovoltaics and Optoelectronics (IAPEROP20)

Tsukuba-shi, Japan, 2020 January 20th - 22nd

Conference Chairs: Michio Kondo, Takuro Murakami and Martin A. Green

Conference Program (Updated 14Jan20)

January 20th - Day 1 (Monday) 1	
16:00 - 18:30	Registration
17:00 - 18:30	Welcome reception_Room 202
January 21st - Day 2 (Tuesday) 2	
08:00 - 09:00	Registration
08:55 - 09:00	Announcement of the day
08:55 - 09:00	Opening
	Session G1 Chair: Michio Kondo Room: Room 202
09:00 - 09:35 G1-K1	<u>Peter Chen</u> (<i>Dept. Photonics, National Cheng Kung University</i>), Yueh-Ya Chiu, Pei-Ying Lin, Itaru Raifuku, Shao-Tung Chang Pseudohalide doped and 2D/3D mixed Perovskite
09:35 - 09:45	Discussion
09:45 - 10:10 G1-I1	<u>Tsutomu Miyasaka</u> (<i>Toin University of Yokohama, Yokohama, Japan</i>) Next generation of perovskite PV with all-inorganic absorbers and dopant-free hole transporters
10:10 - 10:15	Discussion
10:15 - 10:45	Coffee Break
	Session G2 Chair: Peter, Chao-Yu Chen Room: Room 202
10:45 - 11:10 G2-I1	<u>TAIHO PARK</u> (<i>Pohang University of Science and Technology</i>) Thermally Stable, Planar Hybrid Perovskite Solar Cells with High Efficiency
11:10 - 11:15	Discussion
11:15 - 11:40 G2-I2	<u>Tze Chien Sum</u> (<i>Division of Physics and Applied Physics, School of Physical and Mathematical Sciences, Nanyang Technological University, Singapore 637371, Singapore</i>) Perovskite Hot Carrier Dynamics
11:40 - 11:45	Discussion
11:45 - 12:10 G2-I3	<u>Udo Bach</u> (<i>ARC Centre of Excellence in Exciton Science, Department of Chemical Engineering, Monash University, Clayton, VIC, Australia</i>), Wenxin Mao, Xiongfeng Lin, Siqi Deng Single-Crystalline and Back-Contact Perovskite Optoelectronics
12:10 - 12:15	Discussion
12:15 - 12:40 G2-I4	<u>Hiroko Yamada</u> (<i>Nara Institute of Science and Technology - Japan</i>) Engineering Thin Films of a Tetrabenzoporphyrin toward Efficient Charge-Carrier Transport
12:40 - 12:45	Discussion
	Industry talks Chair: Peter, Chao-Yu Chen



12:45 - 12:50	<u>Luca Sorbello</u> (<i>Greatcell Solar</i>)
talks-S1	Hyperion a bright future for solar simulators: The Greatcell Solar Italia way
13:00 - 14:30	lunch
	Session A1 Chair: Udo Bach Room: Room 201A
14:30 - 14:55	<u>Jung-Yao Chen</u> (<i>National Chung Cheng University, TW</i>)
A1-IS1	Non-Volatile Photomemory with a Ultrafast and Multi-Level Memory Behavior
14:55 - 15:00	Discussion
15:00 - 15:15	<u>Mohamad I. Nugraha</u> (<i>King Abdullah University of Science and Technology (KAUST) - Saudi Arabia</i>), Emre
A1-O1	Yarali, Yuliar Firdaus, Yuanbao Lin, Nimer Wehbe, Abdulrahman El-Labban, Emre Yengel, Thomas D. Anthopolous Rapid Photonic Curing for the Fabrication of Strongly-Confined Colloidal Quantum Dot Transistors with High Carrier Mobility
15:15 - 15:30	<u>Vishwesh Venkatraman</u> (<i>Norwegian University of Science and Technology (NTNU)</i>), John de Mello
A1-O2	Accelerated Design of Photovoltaic Dyes Using Materials Informatics
15:30 - 15:45	<u>Ayumi Ishii</u> (<i>Graduate School of Engineering, Toin University of Yokohama</i>), Tsutomu Miyasaka
A1-O3	Highly Efficient Near-Infrared Luminescence of Yb(III) doped Perovskite Thin Films for Light-Emitting Device Applications
15:45 - 16:15	Coffee Break
16:15 - 16:30	<u>Ellie Tanaka</u> (<i>School of Chemistry, University of Edinburgh</i>), Hannes Michaels, Marina Freitag, Neil Robertson
A1-O4	Strategies Towards Efficient and Cost-effective Dye-sensitized Solar Cells
	Session B1 Chair: Taiho PARK Room: Room 201B
14:30 - 14:55	<u>Ryota Arai</u> (<i>RICOH Co. Ltd.</i>)
B1-IS1	Organic Energy-Harvesting Devices and Modules for Self-Sustainable Power Generation under Ambient Indoor Lighting Environments
14:55 - 15:00	Discussion
15:00 - 15:15	<u>Begimai Adilbekova</u> (<i>KSC, KAUST</i>), Yuanbao Lin, Emre Yengel, Hendrik A. Faber, George Harrison, Yuliar
B1-O1	Firdaus, Vincent Tung, Thomas D. Anthopoulos Aqueous ammonia-based exfoliation of two dimensional MoS2 and WS2 and their application in non-fullerene organic solar cells
15:15 - 15:30	<u>Yuliar Firdaus</u> (<i>King Abdullah University of Science and Technology (KAUST) - Saudi Arabia</i>), Qiao He,
B1-O2	Yuanbao Lin, Ferry Anggoro Ardy Nugroho, Emre Yengel, Ahmed H. Balawi, Frederic Laquai, Christoph Langhammer, Feng Liu, Martin Heeney, Thomas D. Anthopoulos Organic Tandem Solar Cells with 15% Efficiency Employing Novel Wide Bandgap Nonfullerene Acceptor
15:30 - 15:45	Emilie Planes, <u>Lara Perrin</u> (<i>Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP, LEPMI, France</i>), Manon Spalla, Muriel Matheron, Solenn Berson, Lionel Flandin
B1-O3	Some Aspect of the Stability of Flexible Organic Solar Cells
15:45 - 16:15	Coffee Break
16:15 - 16:30	<u>Namrata Pant</u> (<i>Interdisciplinary Graduate School of Medicine and Engineering, University of Yamanashi</i>),
B1-O4	Masatoshi Yanagida, Yasuhiro Shirai, Kenjiro Miyano Investigating the Effect of Nickel Oxide on the Crystallisation, Optoelectronic Properties and Performance of Perovskite Solar Cells
16:30 - 16:45	<u>Teng Ma</u> (<i>Advanced Institute for Materials Research (WPI-AIMR), Tohoku University, Sendai 980-8577, Japan</i>),
B1-O5	Ayumi Hirano-Iwata Boosting the performance of back-contact perovskite solar cells by enlarging crystal size



16:45 - 17:00 **Chun-Hsiao Kuan** (*Graduate Institute of Photonics and Optoelectronics, National Taiwan University, Taipei, No. B1-O6*, 1, Sec. 4, Roosevelt Road, 10617, Taiwan), Ching-Fuh Lin
 A Practicable Way Combining Advantages Of Thermal Evaporation And Solution Process To Control Reaction Of MAPbI₃ To Fabricate High Crystallization Perovskite

Session C1

Chair: Tze-Chien Sum
 Room: Room 202

14:30 - 14:55 **Shigehiko Mori** (*Corporate Research & Development Center, Toshiba Corporation*), Haruhi Ohka, Hideyuki C1-IS1 Nakao, Akio Amano, Kenji Todori
 Film-Based Large-area Perovskite Photovoltaic Module Development

14:55 - 15:00 Discussion

15:00 - 15:15 **DIMITRIOS RAPTIS** (*College of Engineering, Swansea University, Bay Campus, Swansea SA1 8EN UK*), VASIL C1-O4 STOITCHKOV, SIMONE MERONI, CARYS WORSLEY, ADAM POCKET, DAVE WORSLEY, MATTHIEW CARNIE, TRYSTAN WATSON
 Enhancing Fully Printable Mesoscopic Perovskite Solar Cells Performance by Increasing Carbon Electrode Conductivity with the Use of Metallic Grids.

15:15 - 15:30 Fanning MENG, Zhu Zhang, **Tingli MA** (*Kyushu Institute of Technology, Japan*)
 C1-O5 Interfacial engineering for carbon-based perovskite solar cells

15:30 - 15:45 **Ryo Ishikawa** (*Saitama University*), Yuma Moriya, Keiji Ueno, Hajime Shirai C1-O6
 Fabrication of perovskite thin-film solar cells with fluorinated passivation layer using a simple one-step spin-coating method without an antisolvent.

15:45 - 16:15 **Coffee Break**

16:15 - 16:30 **Atsushi Kogo** (*Research Center for Photovoltaics (RCPV), National Institute of Advanced Industrial Science and C1-O3 Technology (AIST)*), Tetsuhiko Miyadera, Masayuki Chikamatsu
 Composition tuning of organic-inorganic perovskite crystals by post-treatment for high efficiency solar cells

16:30 - 16:45 **Richard Murdey** (*Kyoto University, Japan*), Minh Anh Truong, Kento Otsuka, Ruito Hashimoto, Tomoya C1-O2 Nakamura, Atsushi Wakamiya
 Light Intensity Dependence Study of Mixed-composition Perovskite Solar Cells

16:45 - 17:00 **Ganbaatar Tumen-Ulzij** (*OPERA, Kyushu University*), Chuanjiang Qin, Toshinori Matsushima, Chihaya Adachi C1-O1
 Detrimental Effect of Excess PbI₂ on the Stability of Perovskite Solar Cells

17:05 - 18:45 **Poster Session**

19:30 - 22:00 **Social dinner**



January 22nd - Day 3 (Wednesday) 3

08:55 - 09:00 **Announcement of the day**

Session G3

Chair: Hideo Ohkita

Room: Room 202

09:00 - 09:35 Shuzi Hayase (*i-Powered Energy System Reserach Center, The University of Electro-Communications*)
G3-K1 Perovskite solar cells with wide band gap and narrow band gap

09:35 - 09:45 Discussion

09:45 - 10:10 Takayuki Negami (*Panasonic Corporation*), Hiroshi Higuchi, Takashi Nishihara, Ryusuke Uchida, Teruaki Yamamoto, Taisuke Matsui, Yukihiro Kaneko

PEROVSKITE PHTOVOLTAIC MODULES FABRICATED by INK JET PRINTING

10:10 - 10:15 Discussion

10:15 - 10:45 **Coffee Break**

Session G4

Chair: Shuzi Hayase

Room: Room 202

10:45 - 11:10 Maria Antonietta Loj (*University of Groningen - NL*)
G4-I1 Highly performing tin-based perovskite solar cells: a focus on the thin film quality

11:10 - 11:15 Discussion

11:15 - 11:40 Eric Wei-Guang Diau (*National Chiao Tung University Hsinchu, Taiwan*)
G4-I2 Lead-free Perovskites for Applications of Photovoltaics and Photocatalysis

11:40 - 11:45 Discussion

11:45 - 12:10 Quentin Jeangros (*École Polytechnique Fédérale de Lausanne (EPFL), Institute of Microengineering (IMT), Photovoltaics and Thin-Film Electronics Laboratory (PV-Lab), Switzerland*), Florent Sahli, Peter Fiala, Ricardo A.Z. Razera, Daniel A. Jacobs, Fan Fu, Terry C.-J. Yang, Quentin Guesnay, Xin Yu Chin, Vincent Paratte, Gizem Nogay, Brett A. Kamino, Saeid Rafizadeh, Arnaud Walter, Soo-Jin Moon, Adriana Paracchino, Marion Dussouillez, Laura Ding, Mathieu Boccard, Sylvain Nicolay, Andrea Ingenito, Christophe Ballif
G4-I3 A nanometric view on performance-loss mechanisms in perovskite/c-Si multi-junction solar cells

12:10 - 12:15 Discussion

12:15 - 12:40 Hideo Ohkita (*Kyoto University, Japan*)
G4-I4 Charge Recombination Losses in Perovskite Solar Cells

12:40 - 12:45 Discussion

Industry talks

Chair: Shuzi Hayase

12:45 - 12:50 Taro Tanabe (*TCl Chemicals*)
talks-S1 TCl industry talk

12:50 - 12:55 Yanek Hebtng (*Greatcell Solar Materials*)
talks-S2 Greatcell Solar Materials

13:00 - 14:30 **lunch**

Session A2

Chair: Jung-Yao Chen

Room: Room 201A

14:30 - 14:55 Yoichi Aoki (*Toray Industries, Inc.*), Shuhei Yamamoto, Daisuke Kitazawa
A2-IS1 Wireless sensor nodes with organic solar cells

14:55 - 15:00 Discussion



- 15:00 - 15:15
A2-O1 **ELHAM REZASOLTANI** (*Department of Physics and Centre for Plastic Electronics, Imperial College London, London, SW7 2AZ, UK.*), Anne Guilbert, Jun Yan, xabier Rodriguz, Mohammed Azzuzi, Sachetan Tuladhar, Andrew Wadsworth, Iain Mcculloch, Mariano Campoy, Jenny Nelson
Correlating the Phase Behavior with the Device Performance in Binary P3HT: NFA Blend Using Optical Probes of Microstructure
- 15:15 - 15:30
A2-O2 **SAFAKATH KARUTHEDATH** (*King Abdullah University of Science and Technology (KAUST) - Saudi Arabia*), Julien Gorenflot, Anastasia Markina, Yuliar Firdaus, Ahmed H. Balawi, Thomas D. Anthopoulos, Denis Andrienko, Frédéric Laquai
Importance of Energetic Driving Force for Efficient Charge Separation in Non-fullerene Organic Solar Cells
- 15:30 - 15:45
A2-O3 **Jun Yan** (*Department of Physics and Centre for Plastic Electronics, Imperial College London, London, SW7 2AZ, UK.*), Elham Rezasoltani, Mohammed Azzouzi, Flurin D. Eisner, Anne A. Y. Guilbert, Jenny Nelson
Relating Microstructure Behaviour to Charge Transfer States Properties and Energy Losses in Organic Bulk Heterojunction Solar Cells
- 15:45 - 16:15 **Coffee Break**
- 16:15 - 16:30
A2-O4 **Zhengfei Wei** (*SPECIFIC, College of Engineering, Swansea University, Bay Campus, Swansea, SA1 8EN, UK*), Benjamin Smith, Amirah Way, Vasil Stoichkov, Francesca De Rossi, Harrison Ka Hin Lee, Jérémy Barbé, Wing C. Tsoi, Justin Searle, David Worsley, Trystan Watson
Room-temperature Processed Transparent Conductive Oxides For Efficient And Semi-transparent Perovskite And Organic Solar Cells
- 16:30 - 16:45
A2-O5 **Mario Leonardus** (*Institute of Chemistry, Academia Sinica, Nankang, Taipei 11529 Taiwan*), Chen-Hsiung Hung
The Effect of Light-Harvesting Property of Oxasmaragdyrin and Its Impact as Hole Transporting Material in Perovskite Solar Cell
- 16:45 - 17:00
A2-O6 **Ece Aktas** (*Institute of Chemical Research of Catalonia-The Barcelona Institute of Science and Technology (ICIQ-BIST), Avda. Països Catalans 16, 43007 Tarragona, Spain*), Jesús Jiménez-López, Emilio Palomares
Self-Assembled Hole Transporting Monolayer to Improve PiN Type Perovskite Solar Cell Performance

Session B2

Chair: Quentin Jeangros
Room: Room 201B

- 14:30 - 14:55
B2-IS1 **Takeru Bessho** (*Research Center for Advanced Science and Technology (RCAST), The University of Tokyo, Japan*)
Material Amelioration of Organometal Halide Perovskite by Potassium-doping and Its Efficient Photovoltaics
- 14:55 - 15:00 Discussion
- 15:00 - 15:15
B2-O1 **Haibin Wang** (*Research Center for Advanced Science and Technology (RCAST), The University of Tokyo, Japan*), Takaya Kubo, Jotaro Nakazaki, Hiroshi Segawa
Enhance Infrared Photocurrent of PbS Quantum Dot Solar Cells toward the Bottom Subcell of Multi-junction Solar Cells
- 15:15 - 15:30
B2-O2 **Cheng-Hung Hou** (*Research Center for Applied Sciences, Academia Sinica, Taipei, Taiwan.*), Shu-Han Hung, Jing-Jong Shyue, Pi-Tai Chou
Revealing Performance Governing Factors of Perovskite Solar Cells via Artifact-Free ToF-SIMS Depth Profiles
- 15:30 - 15:45
B2-O3 **Lara Perrin** (*LEPMI / CNRS UMR 5279 / Université Savoie Mont Blanc*), Manon Spalla, Emilie Planes, Muriel Matheron, Solenn Berson, Lionel Flandin
Gold electrode mitigation impact: elucidation of both degradation and safeguard mechanisms in a mixed-ion perovskite solar device
- 15:45 - 16:15 **Coffee Break**
- 16:15 - 16:30
B2-O4 **Shinichi Magaino** (*Kanagawa Institute of Industrial Science and Technology (KISTEC), Kawasaki, Japan*), Hidenori Saito, Daisuke Aoki, Tomoyuki Tobe
Standardization of Measurement Protocols for Photovoltaic Devices Exhibiting Complex Current Response to Applied Voltage



- 16:30 - 16:45 B2-O5 Afsal Manekkathodi, Bin Chen, Junghwan Kim, Se-Woong Baek, Benjamin Scheffel, Yi Hou, Olivier Ouellette, Makhstud Saidaminov, Oleksandr Voznyy, Vinod Madhavan, Abdelhak Belaidi, Sahel Ashhab (*Qatar Environment and Energy Research Institute, Hamad Bin Khalifa University, Doha*), Edward Sargent
Solution-processed Perovskite-colloidal Quantum Dot Tandem Solar Cells for Photon Collection Beyond 1000 nm
- 16:45 - 17:00 B2-O6 Jun-Yu Huang (*Graduate Institute of Photonics and Optoelectronics and Department of Electrical Engineering, National Taiwan University*), En-Wen Chang, Yuh-Renn Wu
Analysis of Hysteresis Effect and Modeling of Ion Migration in Perovskite Solar Cells

Session C2

Chair: Ellie Tanaka
Room: Room 202

- 14:30 - 14:55 C2-IS1 Simone Mastroianni (*Fraunhofer Institute for Solar Energy Systems ISE, Heidenhofstraße 2, D-79110 Freiburg, Germany*), Lukas Wagner, Gayathri Mathiazhagan, Dmitry Bogachuk, Kübra Yasaroglu Ünal, Shankar Bogati, Thomas Kroyer, Michael Daub, Harald Hillebrecht, Jean-Luc Rehspringer, Aziz Dinia, Andreas Hinsch
Towards a Sustainable Energy Future: Fully Printable Carbon-Based Perovskite Solar Cells with Overcome Charge Transport Limitation and Improved Light-Harvesting Efficiency
- 14:55 - 15:00 Discussion
- 15:00 - 15:15 C2-O1 Muhammad Akmal Kamarudin (*i-Powered Energy System Reserach Center, The University of Electro-Communications*), Daisuke Hirotoni, Zhen Wang, Kengo Hamada, Kohei Nishimura, Qing Shen, Satoshi Iikubo, Takashi Minemoto, Kenji Yoshino, Shuzi Hayase
Lead-free tin halide perovskite solar cells beyond 10 % efficiency
- 15:15 - 15:30 C2-O2 Satoshi Uchida (*Research Center for Advanced Science and Technology (RCAST), The University of Tokyo, Japan*), Ludmila Cojocar, Hiromi Tobita, Viraji Jayaweera, Shoji Kaneko, Hiroshi Segawa
Evaluation of interface junction capacitance of perovskite solar cells by direct current measurement
- 15:30 - 15:45 C2-O3 Tianhao Wu, Xiao Liu (*Photovoltaic Materials Group, Center for Green Research on Energy and Environmental Materials, National Institute for Materials Science (NIMS)*), Liyuan Han
Efficient and Stable Tin Perovskite Solar Cells by Introducing Π -conjugated Lewis Base
- 15:45 - 16:15 **Coffee Break**
- 16:15 - 16:30 C2-O4 Adam Wright (*University of Oxford, Department of Physics, Clarendon Laboratory, Parks Road, Oxford, OX13PU, UK*)
Band-tail trapping in FAPbI₃ perovskite
- 16:30 - 16:45 C2-O5 Yajun Gao (*King Abdullah University of Science and Technology (KAUST) - Saudi Arabia*), Kai wang, mingcong wang, Jafar Khan, Ahmed Balawi, Stefaan Wolf, Frederic Laquai
Revealing the Impact of Cesium/Rubidium Incorporation on the Photophysics of Multiple-Cation Lead Halide Perovskites

Session G5

Chair: Takuro Murakami
Room: Room 202

- 17:00 - 17:40 G5-K1 Henry Snaith (*University of Oxford, Department of Physics, Clarendon Laboratory, Parks Road, Oxford, OX13PU, UK*)
Perovskite solar cells: materials, devices and industrialization
- 17:40 - 17:45 Discussion
- 17:45 - 18:00 **Closing ceremony and poster awards_Room 202**



Poster Contribution

021	<u>Said Kazaoui</u> (<i>Research Center for Photovoltaics (RCPV), National Institute of Advanced Industrial Science and Technology (AIST), Tsukuba, Japan</i>) KI Post-Treatment Improves the Performances of Perovskite Solar Cells
060	<u>Chongyang Xu</u> (<i>Department of Nano-Physics, Gachon University</i>), Eun-Cheol Lee Morphology Control of SnO ₂ Layer for Efficient Perovskite Solar Cells through a Solvent Engineering Strategy
062	<u>Dhruba B. Khadka</u> (<i>International Center for Young Scientists (ICYS), National Institute for Materials Science (NIMS), 1-1 Namiki, Tsukuba, Ibaraki 305-0044, Japan.</i>), Yasuhiro Shirai, Masatoshi Yanagida, Kenjiro Miyano Mitigation of the Recombination Activities with Rubidium incorporation for Efficient and Stable FASnI ₃ Solar Cells
063	<u>Ying-Chiao Wang</u> (<i>International Center for Young Scientists (ICYS), National Institute for Materials Science (NIMS)</i>), Kazuhito Tsukagoshi Silicon-Based Quantum Dot-Assisted Photoelectric Effect in Perovskite Solar Cells
066	<u>Yung-Chung Chen</u> (<i>Department of Chemical and Materials Engineering, National Kaohsiung University of Science and Technology</i>), Yan-Heng Li, Chung-Lin Chung, Hsiang-Lin Hsu, Chih-Ping Chen Methoxy substituents effect in triphenylamine dibenzofulvene based hole transporting materials for dopant free p-i-n perovskite solar cells
067	<u>Md. Shahiduzzaman</u> (<i>Nanomaterials Research Institute (NanoMaRI), Kanazawa University</i>), Ashish Kulkarni, Masahiro Nakano, Makoto Karakawa, Kohshin Takahashi, Shinjiro Umezu, Atsushi Masuda, Satoru Iwamori, Masao Isomura, Koji Tomita, Tsutomu Miyasaka, Tetsuya Taima Brookite TiO ₂ Nanoparticle Bridge Boosts the Stability of Perovskite Solar Cells
069	Thibault Lemerrier, <u>Lara Perrin</u> (<i>Univ. Grenoble Alpes, Univ. Savoie Mont Blanc, CNRS, Grenoble INP, LEPMI, 38000 Grenoble, France</i>), Emilie Planes, Solenn Berson, Lionel Flandin Inverted Perovskite Solar Cells: Influence of Anti-Solvent Nature and Dripping Time on Perovskite Layer Properties and Uniformity
070	<u>Nilesh Manwar</u> (<i>Chemical and Material Sciences Division, CSIR-Indian Institute of Petroleum (CSIR-IIP), Dehradun, India-248005</i>), SumanLata Jain, Nitin Labhasetwar Crystallization and Impact of B-site metal cation substitution of Lead Free Organic-Inorganic Cu (II) Perovskites structure and its optical properties
071	<u>Issei Takenaka</u> (<i>Advanced Technology Research Laboratories, Idemitsu Kosan Co.,Ltd., 123-1 Shimokawairi, Atsugi, Kanagawa 243-0206, Japan</i>), Motoshi Nakamura, Yoshinori Kimoto, Yuta Higashino, Hiroki Sugimoto, Naoyuki Shibayama, Chie Nishiyama, Keishi Tada, Takeru Bessho, Hiroshi Segawa Room-Temperature Sputtered SnO ₂ Thin Film as an Electron Transport Layer for Mixed-Cation Planar Heterojunction Perovskite Solar Cells
072	<u>Ching Chang Lin</u> (<i>University of Tokyo, Japan</i>), Takuro N. Murakami, Masayuki Chikamatsu, Takeru Bessho, Hiroshi Segawa A Facile Ionic Compound Modification of SnO ₂ ETL to Enhance the Performance Perovskite Solar Cell
073	<u>Ryuji Kaneko</u> (<i>College of Science and Technology, Nihon University</i>), Joe Otsuki, Md. Khaja Nazeeruddin, Ashrafal Islam Surface Modified NiOx Nanoparticles as Hole Transport Materials in n-i-p Structured Perovskite Solar Cells
074	<u>Shuzhang Yang</u> (<i>State Key Laboratory of Fine Chemicals, School of petroleum and chemical engineering, Dalian University of Technology, Panjin, 124221, China.</i>), Zhanglin Guo, Liguao Gao, Tingli Ma Bifunctional Dye Molecule in All-Inorganic CsPbI ₃ Perovskite Solar Cells with Efficiency Exceeding 10%
075	<u>Liang Wang</u> (<i>Kyushu Institute of Technology, Japan</i>), Shuzhang Yang, Fengjing Liu, Chao Jiang, Tingli Ma A New Strategy of Methylamine Iodide Solution Assisted Repair for Pinhole-Free Perovskite Films in High-Efficiency Photovoltaic under Ambient Conditions
076	<u>Takeyuki Sekimoto</u> (<i>Panasonic Corporation, Osaka 570-8501, Japan.</i>), Michio Suzuka, Tomoyasu Yokoyama, Yoshiko Miyamoto, Ryusuke Uchida, Maki Hiraoka, Kenji Kawano, Takashi Sekiguchi, Yukihiko Kaneko Inverse Temperature Crystallization of Formamidinium Tin Iodide



- 077 Masatoshi Yanagida (*Center for Green Research on Energy and Environment Materials, National Institute for Materials Science (NIMS), 1-2-1 Sengen, Tsukuba, Ibaraki 305-0047, Japan.*), Namrata Pant, Yasuhiro Shirai, Kenjiro Miyano
RF Sputtered NiOx as Hole Transport Layer for CH₃NH₃PbI₃ Perovskite Solar Cell
- 078 Takashi Koida (*Research Center for Photovoltaics, National Institute of Advanced Industrial Science and Technology, Japan*), Hitoshi Sai, Jiro Nishinaga
High-Mobility Transparent Conductive Oxide Films Fabricated under Low-Energy Ion Bombardment at Low Temperature
- 080 Chao Ding, Xing Lin (*The University of Electro-Communications, Japan*), Feng Liu, Yaohong Zhang, Daisuke Hirotsu, Taro Toyoda, Shuzi Hayase, Takashi Minemoto, Taizo Masuda, Kenji Katayama, Qing Shen
Photoexcited Hot and Cold Electron and Hole behavior at FAPbI₃ Perovskite Quantum Dots/Metal Oxide Heterojunctions: Hot versus Cold Charge-relaxation and transfer
- 081 Kentaro Kawabata (*The University of Electro-Communications*), Feng Liu, Chao Ding, Yaohong Zhang, Qing Shen, Shuzi Hayase, Taro Toyoda
Colloidal Synthesis of Air-Stable Alloyed CsSn_{1-x}PbxI₃ Perovskite Nanocrystals for Use in Solar Cells
- 082 Dong Liu (*The University of Electro-Communications, Japan*), Yaohong Zhang, Naoki Nakazawa, Chao Ding, Feng Liu, Taro Toyoda, Shuzi Hayase, Qing Shen
The Interparticle Distance Limit for Multiple Exciton Dissociation in PbS Quantum Dot Solid Films
- 083 Gayathri Mathiazhagan, Lukas Wagner, Shankar Bogati, Kübra Yasaroglu Ünal, Thomas Kroyer, Simone Mastroianni (*Fraunhofer Institute for Solar Energy Systems ISE, Heidenhofstraße 2, D-79110 Freiburg, Germany*), Andreas Hinsch
Double-Mesoscopic HTM-Free Perovskite Solar Cells: Overcoming Charge Transport Limitation by Sputtered 40 nm Al₂O₃ Isolation Layer
- 084 Daisuke Aoki (*Kanagawa Institute of Industrial Science and Technology (KISTEC), Kawasaki, Japan*), Hidenori Saito, Tomoyuki Tobe, Shinichi Magaino
Steady-state Measurement of Maximum Power for Perovskite Solar Cell
- 085 Rojas Tarazona Fredy Enrique (*Pontificia Universidad Javeriana*), Diaz-Granados Fabian, Méndez Henry, Salcedo Juan Carlos, Rodríguez Hernán, Mejía Augusto, Jiménez Luis Camilo
Optical and Electrical Properties of a Prototype of Organic Solar Cell Based on P3HT:PCBM
- 086 Hidenori Saito (*Kanagawa Institute of Industrial Science and Technology (KISTEC), Kawasaki, Japan*), Daisuke Aoki, Tomoyuki Tobe, Shinichi Magaino
Development the Measurement Method for Maximum Power of Metastable Perovskite Solar Cells.
- 087 Nobuko Onozawa-Komatsuzaki (*National Institute of Advanced Industrial Science and Technology (AIST)*), Yoshihiko Nishihara, Masayuki Chikamatsu, Yuji Yoshida
Effect of FABr Passivation on the Interface of Perovskite/hole-transporting Layer on Perovskite Solar Cells with Donor-Acceptor Conjugated Polymer
- 088 Tetsuhiko Miyadera (*National Institute of Advanced Industrial Science and Technology (AIST)*), Yuto Auchu, Kohei Yamamoto, Noboru Ohashi, Tomoyuki Koganezawa, Hiroyuki Yaguchi, Yuji Yoshida, Masayuki Chikamatsu
Crystal Growth Control and Real-Time Analysis of Organolead-Halide Perovskite
- 089 Seojun Lee (*School of Energy Systems Engineering, Chung-Ang University, Seoul, 06974, Republic of Korea*), Saemon Yoon, Jun Ryu, Dong-Won Kang
Additive Engineering of Sn-based Perovskites for Efficient Pb-free Solar Cells
- 090 Koichiro Kamimori (*Department of Applied Chemistry and Research Institute for Science and Engineering, Waseda University, 169-8555, Japan*), Koki Suwa, Takeo Suga, Kenichi Oyaizu, Hiroshi Segawa, Hiroyuki Nishide
Metal-dopant-free Hole-transporting Poly(triarylamine)s for a Durable Perovskite Solar Cell
- 091 DONG XUE (*Division of Materials Science, University of Tsukuba, Tsukuba, Ibaraki, 305-8573, Japan*), Shinpei Kamiya, Masahiko Saito, Itaru Osaka, Kazuhiro Marumoto
Direct Evidence of Less Charge Accumulation in Highly Durable Polymer Solar Cells Using Operando ESR Spectroscopy
- 092 Yue Qi (*Osaka University, Japan*), Takahiro Kawaguchi, Yuna Suzuki, Tomoyoshi Suenobu, Kensuke Kojima, Jun Azuma, Mitsuharu Suzuki, Ken-ichi Nakayama
Ternary Organic Solar Cells Based on Two Perylenediimide-based Acceptors



- | | |
|-----|---|
| 094 | <u>Marika Owada</u> (<i>Department of Applied Chemistry and Research Institute for Science and Engineering, Waseda University, 169-8555, Japan</i>), Koki Suwa, Takeo Suga, Kenichi Oyaizu, Hiroshi Segawa, Hiroyuki Nishide
Perovskite Layer Formation by a Co-evaporation Method and its Application for Surface Modification |
| 096 | <u>Itaru Raifuku</u> (<i>Department of Photonics, National Cheng Kung University</i>), Ming-Hsien Li, Yu-An Chen, Peter Chen
Preparation of 2D/3D Hybrid Perovskite Films Via Low Pressure Vapor Assisted Solution Process and its Optical Characterization |
| 097 | <u>Mako Nakamura</u> (<i>The University of Electro-Communications, Japan</i>), Chao Ding, Yaohong Zhang, Feng Liu, Taro Toyoda, Shuzi Hayase, Qing Shen
Suppression of Charge Recombination of PbS Quantum Dots/ZnO Nanowires Heterojunction Solar Cells by Interface Passivation |
| 098 | <u>Bhaskar Parida</u> (<i>School of Energy Systems Engineering, Chung-Ang University, Seoul, 06974, Republic of Korea</i>), Seojun Lee, Saemon Yoon, Jun Ryu, Dong-Won Kang
Solution-Processed Aluminum-Doped Nickel Oxide Hole Collectors for Highly Efficient Planar Perovskite Solar Cells |
| 099 | <u>Ryota Jono</u> (<i>University of Tokyo, Japan</i>), Hiroshi Segawa
Structure-Bandgap Relation on the Lead Halides based Perovskite Materials |
| 100 | <u>Dong-Gun Lee</u> (<i>School of Energy Systems Engineering, Chung-Ang University, Seoul, 06974, Republic of Korea</i>), Jun Ryu, Saemon Yoon, Dong-Won Kang
One-Step Fabrication Process of CsPbBr ₃ Inorganic Perovskite Solar Cells |
| 102 | <u>Namrata Pant</u> (<i>Interdisciplinary Graduate School of Medicine and Engineering, University of Yamanashi, 4-3-11 Takeda, Kofu, Yamanashi 400-8511, Japan</i>), Masatoshi Yanagida, Yasuhiro Shirai, Kenjiro Miyano
Importance of Surface Treatment to Enhance the Efficiency of Undoped sp-NiOx Based Perovskite Solar Cells |
| 103 | <u>Kohei Kuwano</u> (<i>Tokyo University of Science, Japan</i>), Yasuyuki Watanabe, Masayuki Chikamatsu, Yuji Yoshida, Eiichi Nishikawa
Semitransparent Organic Photovoltaic Cells Based on Long-wavelength Infrared Semiconductor Layer |
| 105 | <u>Ganbaatar Tumen-Ulzij</u> (<i>OPERA, Kyushu University</i>), Toshinori Matsushima, Dino Klotz, Chuanjiang Qin, Chihaya Adachi
Long-term Stable Perovskite Solar Cells under 1000 Hours Continuous Illumination |