
Program Book

International Symposium on Solar Energy 2024 (ISSE 2024)

Welcome to Fukuoka!



Date: 2024.7.22-2024.7.23

Venue: Hall A&B, I2CNER,
Kyushu University
Fukuoka, Japan

Organizer:

Guo Zhanglin

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No. 1 building, Room 106, I2CNER, Kyushu University





July 22nd (Monday)

9:30-9:40

Director of I2CNER, Opening remark

9:40-10:05

I2CNER-featured research toward carbon neutrality:

Direct CO₂ capture from the air by free-standing nanomembranes

Shigenori Fujikawa (Associate Director of I2CNER)

International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University

Session Chair: Hong Lin, Tsinghua University

10:05-10:30

Towards production and proper recovery of ITO-PET film perovskite solar cell modules

Tsutomu Miyasaka

Toin University of Yokohama

10:30-10:55

High-efficiency Flexible Perovskite Solar Cells Based on NiOx

Xin Li

School of Electronic Science and Engineering, Xiamen University

10:55-11:20

Perovskite-based photovoltaics toward indoor and outdoor applications

Yasuaki Ishikawa

College of Science and Engineering, Aoyama Gakuin University

11:20-11:45

Homogenizing morphology and composition of methylammonium-free wide-bandgap perovskite for efficient and stable tandem solar cells

Hong Zhang, Xinxin Lian

State Key Laboratory of Photovoltaic Science and Technology, Institute of Optoelectronics, Fudan University

11:45-13:15 Lunch Break



Session Chair: Satoshi Uchida, The University of Tokyo

13:15-13:40

Development of Pb-free perovskite and carbon materials for perovskite solar cells

Tingli Ma

Graduate School of Life Science and Systems Engineering, Kyushu Institute of Technology

13:40-14:05

Perovskite Solar Cell: A Paper Monster or the Holy Grail of Next-generation Photovoltaic Technology?

Tzu Chien Wei^{1,2}

¹ Department of Chemical Engineering, National Tsing-Hua University

² Center for Emergent Functional Matter Science, National Yang Ming Chiao Tung University

14:05-14:30

Exploring the potential of AgBiS₂ in Perovskite/AgBiS₂ tandem solar cells

Ludmila Cojocaru¹, Ajay Kumar Jena¹, Kei Ito², Kazuteru Nonomura³, Takaya Kubo⁴, Satoshi Uchida⁴, Hiroshi Segawa^{1,2,3,4}

¹ Komaba Institute for Science, ² Graduate School of Engineering, ³ Komaba Organization for Educational Excellence, ⁴ Research Center for Advanced Science and Technology, The University of Tokyo

14:30-14:50

Polarity-dependent macroscopic ferroelectric modulation in 2D heterojunction transistor for deep neural network

Enlong Li

Institute of Optoelectronic, Fudan University

14:50-15:05

Technology of KOREA KIYON's Deposition System Integrated into Glovebox at the Field of Batteries and Solar Cell R&D

Jeffy Lee

KOREAKIYON Co., Ltd.

15:05-15:25 Coffee Break



Session Chair: Chu-Chen Chueh, National Taiwan University

15:25-15:50

Nanomaterials improving performance of perovskite solar cells

Hong LIN*, Xuanling Liu, Ziling Zhang and Jianfei Yang

State Key Laboratory of New Ceramics & Fine Processing, School of Materials Science and Engineering, Tsinghua University

15:50-16:15

Formation of a Tetragonal-Cubic Superlattice Structure in Perovskite Solar Cells

Satoshi Uchida¹, Hiroshi Segawa^{1, 2, 3}

¹ Research Center for Advanced Science and Technology, The University of Tokyo

² Department of Chemical System Engineering, The University of Tokyo

³ Department of General System Studies, The University of Tokyo

16:15-16:40

Impact of alkali metal hydroxide treatment on perovskite solar cell performance

Yuki Fujita,^{1,2} Guo Zhanglin,^{1,3} and Toshinori Matsushima¹⁻³

¹ International Institute for Carbon-Neutral Energy Research (WPI-I²CNER), Kyushu University

² Department of Applied Chemistry, Faculty of Engineering, Kyushu University

³ Center for Energy Systems Design (CESD), WPI-I²CNER, Kyushu University

16:40-17:05

Visualization of crystallization and degradation processes in organic-inorganic perovskite crystals

Naoyuki Shibayama

Graduate School of Engineering, Toin University of Yokohama

17:05-17:30

Bulk photovoltaic effect in one-dimensional helical perovskite

Ayumi ISHII

School of Advanced Science and Engineering, Waseda University

17:35 Group photo at the Hall

18:00-20:00 Banquet



July 23rd (Tuesday)

Session Chair: Atsushi Wakamiya, Kyoto University

9:30-9:55

Progress of tin-based perovskite solar cells

Shuzi Hayase

i-Powered Energy System Research Center, The University of Electro-Communications

9:55-10:20

Defect levels of perovskite solar cells: first-principles calculations

S. Iikubo, S. Kawachino, Q. Wang, N. Sekiguchi, K. Takasaki

Faculty of Engineering Sciences, Kyushu University

10:20-10:45

Molecular additive engineering for wide-bandgap Sn-perovskite solar cells with unprecedented efficiency over 12%

Dong-Won Kang

Department of Energy Systems Engineering, Chung-Ang University

10:45-11:05

High-Performance Tin-Based Metal Halide Perovskite Electronics

Shuzhang Yang

Fudan University

11:05-11:25

Metal Halide Perovskite Solar Cells: Stability Issue and Lead-Free Devices

Tianhao Wu

International Institute for Carbon-Neutral Energy Research (WPI-I²CNER), Kyushu University

11:25-13:15 Lunch Break



Session Chair: Tsutomu Miyasaka, Toin University of Yokohama

13:15-13:40

Surface Organic Materials for Efficient Perovskite Photovoltaics

Atsushi Wakamiya

Institute for Chemical Research, Kyoto University

13:40-14:05

Strategies for improving the long-term stability perovskite solar cells

Zhiping Wang

School of Physics and Technology, Wuhan University

14:05-14:30

Slow and fast performance decay in perovskite solar cells under operational conditions-an interplay between ions and photocarriers

Ajay Kumar Jena, Kan Ryota, Keishi Tada, Kazuteru Nonomura, Ludmila Cojocaru, Samy Almosni, Satoshi Uchida, Takaya Kubo, Hiroshi Segawa

The University of Tokyo

14:30-14:55

Interface-Driven Stability for Halide Perovskite Photovoltaics: A Fundamental Understanding

Zonglong Zhu

Department of Chemistry, City University of Hong Kong

14:55-15:20

Stabilizing Strategies for Efficient Perovskite Solar Cells

Yanbo Wang, Liyuan Han

Shanghai Jiao Tong University

15:20-15:40 Coffee Break

Session Chair: Toshinori Matsushima, Kyushu University

15:40-16:05

Less defect and stable perovskite quantum dots for solar cell applications

Qing Shen



The University of Electro-Communications

16:05-16:30

Interface Design for Efficient Perovskite and Perovskite/Organic Tandem Solar Cells

Chu-Chen Chueh

Department of Chemical Engineering, National Taiwan University

16:30-16:55

High performance perovskite solar cells: Modification of interface at perovskite/HTL

Gyu Min Kim

Hankyong National University, Department of Chemical Engineering

16:55-17:20

BODIPY-containing D- π -A type sensitized type photocatalyst for H₂ production under NIR light

Motonori Watanabe

International Institute for Carbon-Neutral Energy Research (WPI-I²CNER), Kyushu University

17:20-17:30

Closing remark