PVSEC-35

35th International Photovoltaic Science and Engineering Conference

November 10-15, 2024 Numazu (Mt. Fuji), Japan

https://pvsec-35.com/

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Program

Sun. 10 Nov.

	401
9:00 – 10:30	
	Tutorial
11:00 – 12:30	
	Lunch Break
14:00 – 15:30	Tutorial
16:00 – 17:30	
17:40	
18:00 – 19:10	

Mon. 11 Nov.

	Convention Hall A	Hall B	301 302	401	402	407
9:00 – 10:30		5-1	5-2	3-1	2-1	1-2
	Break					
11:00 – 12:30		5-1	1-2	3-2	CC-2	CC-3
	Lunch Break					
14:00 – 15:30	Opening Ceremony					
16:00 – 17:30						
17:40						
18:00 – 19:10	Welcome Reception					

Tue. 12 Nov.

	Convention Hall A	Hall B	301 302	401	402	407	Multi purpose Hall
9:00 – 10:30	Plenary (1,1,3)						Onsite Exhibition
	Break						
11:00 – 12:30		5-1	1-1 2-2	5-2	CC-3	1-2	Poster 3-1 4-2 CC2
	Lunch Break						
14:00 – 15:30	5-1	4-2	3-1	2-1	1-3	IEA-PVPS WS	Poster 3-2 CC1 CC3
	Break						
16:00 – 17:30	5-1	4-3	3-2	CC-2	4-1		Poster 5-2
17:40		5-1	3-2 CC1				
18:00 – 19:10							

Wed. 13 Nov.

	Convention Hall A	Hall B	301 302	401	402	407	Civic Salon	Multi purpose Hall
9:00 – 10:30	Plenary (3,5,CC-1)							Poster only viewing / Onsite Exhibition
	Break							
11:00 – 12:30		CC-1	1-1	3-1	5-1	4-3		
	Lunch Break						WinPV luncheon	
14:00 – 15:30								
16:00 – 17:30								
17:40								
18:00 – 19:10	Banquet							

Thu. 14 Nov.

	Hall B	301 302	401	402	407	Multi purpose Hall
9:00 – 10:30	CC-1	4-2	3-1	2-2	5-2	Poster 5-1 1-2/1-3 4-1 / Onsite Exhibition
	Break					
11:00 – 12:30	CC-1	2-2	3-2	4-1	1-2	Poster 5-1 1-1 4-3
	Lunch Break					
14:00 – 15:30	5-1	Asian Nations WS	3-2	4-2	1-1	Poster 2-1 2-2
			Break			
16:00 – 17:30	5-1		5-2	4-1	2-1	

Fri. 15 Nov.

	Convention Hall A
9:00 – 10:30	Plenary (2,2,4)
	Break
11:00 – 12:30	Plenary (4,4)
	Closing Ceremony

Technical Area

Area1: PV in Sustainable Energy System
- 1-1 Policy, Market, Finance and Deployment
- 1-2 Grid Integration and Energy Management
- 1-3 Green Energy Carriers and Storage

Area2: System Engineering and Field Performance
- 2-1 Integrated PV and Advanced Applications of Photovoltaics
- 2-2 Field Performance of Photovoltaic Systems

Area3: Wafer-based Silicon Photovoltaics
- 3-1 Materials, Processes, Fundamentals
- 3-2 Cells and Modules

Area4: Thin-film Photovoltaics and Modules
- 4-1 Organic and Inorganic Photovoltaics
- 4-2 Compound Thin-film Photovoltaics
- 4-3 III-V High-efficiency Devices

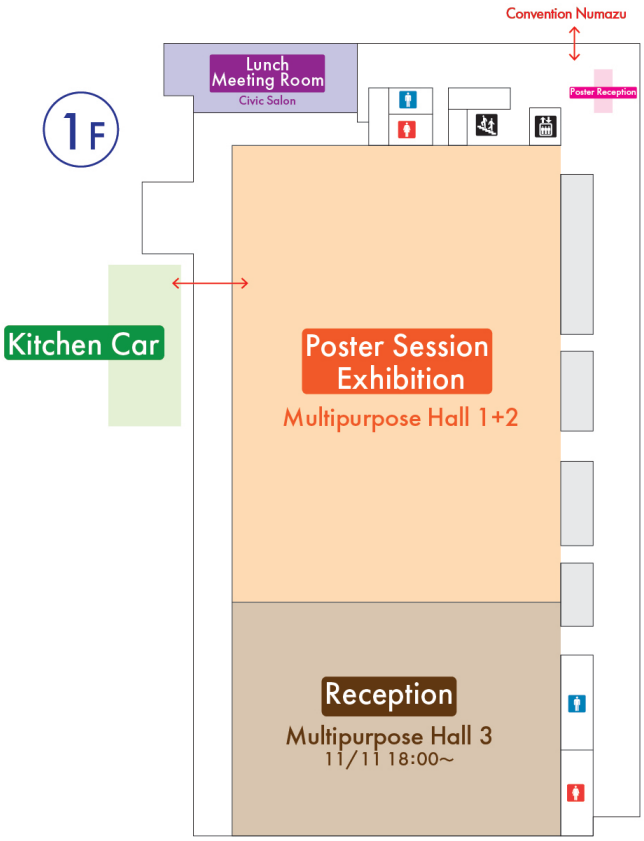
Area5: Perovskite and Emerging Photovoltaics
- 5-1 Perovskite Photovoltaics
- 5-2 Emerging Materials and New Concepts

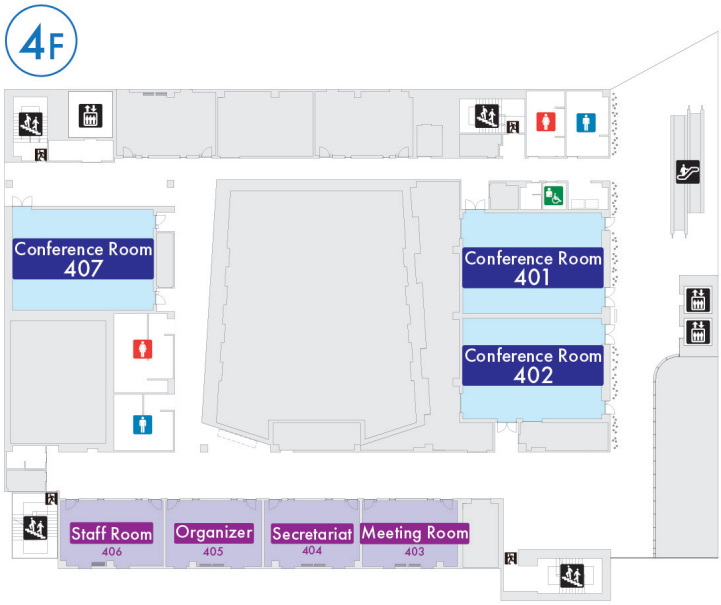
Cross Cutting Areas
- CC-1 Perovskite Tandems
- CC-2 Artificial Intelligence in PV Development
- CC-3 Solar to X; Sciences, Materials and Devices

Floor Map

Convention Numazu

Kiramesse Numazu





Please answer the questionnaire on the website.

PVSEC-35 is supported by the Japan Tourism Agency. The necessary condition for the support is the satisfaction survey of the conference participants.

When you complete the survey, please show us a completed response screen at the tourism booth on the 1st floor of Plaza Verde. The first 250 participants will receive a pen and eraser from the Shizuoka Prefecture Eastern Regional Convention Bureau.

Akira YAMADA
Institute of Science Tokyo

Message from the General Chair

On behalf of the Organizing Committee, I would like to invite you to attend the 35th International Photovoltaic Science and Engineering Conference (PVSEC-35), to be held in Numazu, Japan, during November 10 -15, 2024. PVSEC-35 will be the largest and most comprehensive PV conference in the Asia-Pacific region in 2024.

PVSEC-35 will provide an excellent platform for the world's photovoltaic scientists and engineers to present and share the latest developments in solar PV technologies. I am also planning two satellite events: the IEA PVPS Workshop (12 November) and the 4th Asian Nations Joint Workshop on Photovoltaics (14 November).

The conference will be held in Numazu, a city in Japan located at the foot of Mount Fuji and on the Pacific Ocean, so you can enjoy both mountain and sea views. In addition, the people of Numazu will welcome us and I hope that PVSEC-35 will be a very valuable and hospitable conference for all of us.

We look forward to welcoming you to PVSEC-35.

Yuzuru UEDA
Tokyo Univ. Science

Message from the Program Chair

On behalf of the Program Committee, I would like to welcome you to the 35th International Photovoltaic Science and Engineering Conference. This conference accepted papers from all the areas relevant to photovoltaic science and technology such as fundamental physics and chemistry, cell and module technologies, characterization techniques, system integrations, grid integration, energy management, policy and market issues, and so on.

The program is composed with the 5 areas + cross cutting areas. “Area1: PV in Sustainable Energy System” is covering the future energy systems including PV as a variable renewable energy and storage technology including batteries and Solar to X technologies. “Area2: System Engineering and Field Performance” covers various kinds of integrated PV technologies. “Area3: Wafer-based Silicon Photovoltaics”, “Area4: Thin-film Photovoltaics and Modules”, and “Area5: Perovskite and Emerging Photovoltaics” include not only materials and devices but also module and system level research. Furthermore, in this edition of PVSEC, cross cutting areas will provide special occasions to discuss about the cutting-edge PV technologies such as Perovskite Tandems, Artificial Intelligence in PV Development and Solar to Hydrogen Materials and Devices.
PVSEC-35 will provide unique and variable opportunities to interact with the researchers in the wide area of PV development.

Awards

PVSEC Award (PVSEC-35)

The person who has been devoting oneself to the progresses of Photovoltaic Science and Engineering for many years, belonging to PVSEC Society in principle. The recipient is selected by the Award Committee based on nominations.
The PVSEC Award (PVSEC-35, 2024) will be presented to:

Prof. Noritaka Usami

For his outstanding contributions to pioneering studies for advancing the efficiency of crystalline silicon solar cells through multiscale materials research from bulk crystal growth to atomic interface control.

Prof. Noritaka Usami graduated from the University of Tokyo in 1991 and earned his Doctor of Engineering degree from the same institution in 1998. He served as a research associate at the Research Center for Advanced Science and Technology at the University of Tokyo from 1994 to 2000 before assuming the role of an associate professor at the Institute for Materials Research at Tohoku University. Since 2013, he has been a professor at the Graduate School of Engineering at Nagoya University. In addition to his academic roles, he was a Senior Science and Technology Policy Fellow at the Cabinet Office, Government of Japan, from 2018 to 2020. As of 2024, he also holds the position of vice presidential advisor at Nagoya University.
His research has focused on improving the efficiency of crystalline silicon solar cells through fundamental materials research across various scales. This includes research on bulk crystal growth, sub-micron-scale processing technology of crystal surfaces, and atomic-scale heterointerface control. His contributions include the development of a cost-effective production method for quasi-monocrystalline ingots utilizing functional defects, photon management technology on thin silicon wafer surfaces, and the realization of high passivation performance of carrier selective contact. Furthermore, he has been at the forefront of research in materials and process informatics.
His outstanding contributions have been recognized with several prestigious awards, including the Best Paper Award at PVSEC (2009), the SiliconPV Award (2018), JSAP Fellowship (2021), and the Commendation for Science and Technology by MEXT Japan (2022). His research interests encompass the study of various silicon-based materials through multiscale materials science and their applications in photovoltaic, photonic, and electronic fields as well as new materials development research methods.

Awards

PVSEC Special Award (PVSEC-35)

The person or group who has been contributing a great deal in any one of the following PV fields;

- growth of photovoltaic industrial technology
- public policymaking, international activities, international standardization
- human resource development, educational activities, dissemination activities
- DEI (diversity, equity and inclusion).

The recipient is selected by the Award Committee based on the nominations.
The PVSEC Special Award (PVSEC-35, 2024) will be presented to:

Mr. Akito Yoshii

For his outstanding contributions to growth of photovoltaic industrial technology.

Mr. Akito Yoshii graduated from the Department of Industrial Chemistry, College of Industrial Technology, Nihon University and joined NAMICS Corporation (then Hokuriku Toryou Co., Ltd.) in 1980. He engaged in the development of internal electrode materials for multi-layer ceramic capacitors (MLCC) as well as related business development. Starting in the late 1990s, he has been engaged in the development of electrode materials for photovoltaic cell applications as a part of NAMICS' strategy to develop eco-conscious commercial materials. His work includes research aimed at increasing the reliability of photovoltaic cells through the industrial-chemistry based evaluations of Ag diffusion to glass frits and the evaluation of reliability affected by an interfacial structure, through structural analysis of an interface between a Si substrate and an Ag electrode of a photovoltaic cell. He was in charge of the development of an Ag paste applicable for heterojunction (HJC) using a resin curing technology, one of the essential technologies NAMICS owns, and successfully developed a paste with the industry-leading low resistance by leveraging a low-temperature fusion phenomenon enabled at 200 degrees Celsius or lower. He has also engaged in other technology developments such as the reduction of Ag content through changing the composition design from the traditional Ag 100% to a composition with base metals. He assumed the position of the Director of the Technical R&D Division in 2009 and additionally Corporate Director in 2019, and has been continuously supervising the Technical R&D Division.

Awards

Hamakawa Award (PVSEC-35)

The Hamakawa Award is named in honor of Professor Yoshihiro Hamakawa, a founder of the photovoltaic community in Japan and the Asia/Pacific PV Conference (PVSEC). The award recognizes scientists and engineers who have made outstanding research and technological accomplishment, and creativity of PV energy conversion. The recipient is selected by the Award Committee based on the nominations.

The Hamakawa Award (PVSEC-35, 2024) will be presented to:

Prof. Atsushi Wakamiya

For his outstanding contributions to pioneering studies on perovskite solar cells.

Prof. Atsushi Wakamiya graduated from Kyoto University in 1998 and received Ph.D from Kyoto University in 2003. He started his academic career at Nagoya University as an assistant professor in 2003. In 2010, he moved to Kyoto University as an associate professor and was promoted to full professor in 2018. Since 2023, he is also deputy executive vice-president for evaluation and research promotion of Kyoto University.

His scientific research contributed to the advancement of perovskite solar cells. In 2014, he developed and commercialized the key purified precursor materials of PbI_2 for metal halide perovskite semiconductors, enabling the fabrication of efficient perovskite solar cells with high reproducibility over the world. He also elucidated the fundamental properties of perovskite semiconductors and the mechanism of power generation in solar cells. He proposed unique molecular design concepts for charge-collecting materials and surface passivation of perovskite layers. Based on these materials and technologies, the high efficiency and stability of solar cells and modules were realized.

He is a project leader of the Green Innovation Program (NEDO) and JST-Mirai Program, and a co-founder and a director (Chief Scientific Officer, CSO) of “EneCoat Technologies, Co. Ltd.”, a startup company for the production of perovskite solar modules.

He has received several awards: The Chemical Society of Japan Award for Creative Work (2020), Commendation for Science and Technology by MEXT Japan: Award for Science and Technology Research Category (2022), etc. His research interests include materials chemistry and perovskite photovoltaics.

Social Programs

Welcome Reception
Date & Time: 18:00-20:00, Monday, Nov. 11, 2024
Venue: Multipurpose Hall (1F), Plaza Verde, Numazu
All participants are invited.
Light meals and beverages (alcohol & soft drinks) will be served.

Evening cafe "Shohei" for students
Date & Time: 19:10-21:00, Tuesday, Nov. 12, 2024
Venue: Foyer (3F), Plaza Verde, Numazu
Light meals and beverages (alcohol & soft drinks) will be served.
Registration is closed because we have reached full capacity.

Excursion
Date: Nov. 13, 2024
Course 1: Mishima Sky Walk & Nirayama Reverberatory Furnaces (World heritage)
Meeting point: Registration desk (1F), Plaza Verde, Numazu
Meeting time: 12:30 (after the sessions)
Itinerary:
12:45 Plaza Verde
13:00 Ryugu Kaisen Market (Seafood Shabu-Shabu Lunch)
※Possibility of seating in a Japanese-style tatami room.
You may be asked to take off your shoes.
14:30 Mishima Sky Walk
15:45 Nirayama Reverberatory Furnaces
17:45 River Side Hotel (Banquet venue)
18:00 Plaza Verde

Course 2: Izu Panorama Park & Numazu Deep Sea Aquarium
Meeting point: Registration desk (1F), Plaza Verde, Numazu
Meeting time: 14:00 (after the WinPV luncheon)
Itinerary:
14:15 Plaza Verde
15:00 Izu Panorama Park
16:15 Numazu Port (Tasting a variety of foods while walking around)
& Numazu Deep Sea Aquarium
17:45 River Side Hotel (Banquet venue)
18:00 Plaza Verde

Banquet

Date & Time: 18:15-20:30, Wednesday, Nov. 13th, 2024

Venue: River Side Hotel Numazu

https://www.numazu-rs-hotel.com/english/

Style: Seating

All seats are sold out.

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(This list is no particular order)

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The Institute of Electrical Engineers of Japan (IEEJ)

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The Chemical Society of Japan（CSJ）
The Electrochemical Society of Japan（ECSJ）
JAPAN SOLAR ENERGY SOCIETY（JSES）

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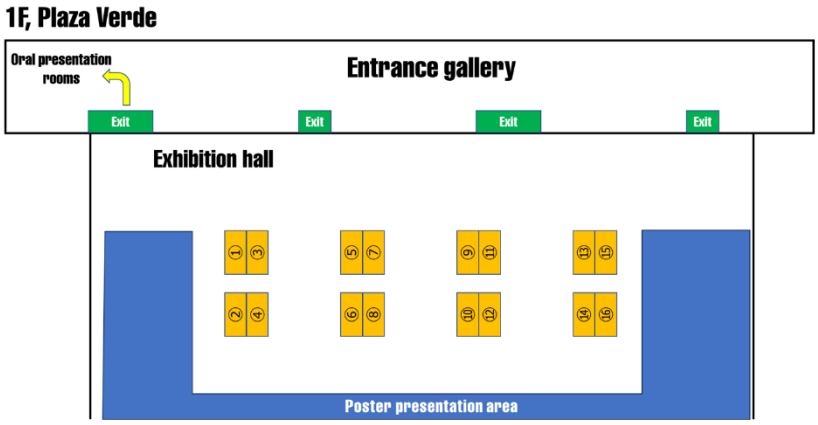

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Jinsoo Song (Northeast Asia Renewable Energy Inst.)
Junsin Yi (Sungkyunkwan Univ.)
Jae Ho Yun (Korea Inst. Energy Technology)
Sewang Yoon (Korea Photovoltaic Society)
Chang Sik Son (Silla Univ.)
Amin Nowshad (American International Univ. Bangladesh)
Yasuhiro Matsumoto (IPN)
Armin Gerhard Aberle (SERIS, National Univ. Singapore)
Marko Topic (Univ. Ljubljana)
Dusit Kruangam (Thai Photovoltaic Industries Association)
Kobsak Sriprapha (National Science and Technology Development Agency)
Miro Zeman (Delft Univ. Tech.)
Arno Smets (Delft Univ. Tech.)
Alex Freundlich (Univ. Houston)
L. L. Kazmerski (-)
Sarah Kurtz (Univ. California Merced)
William N. Shafarman (IEC, Univ. Delaware)

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Tatsuya Takamoto (SHARP, Japan)
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Yoshihito Eguchi (VENA Energy, Nippon Renewable Energy, Japan)
Peter Hacke (NREL, USA)
Edward Hsi (Swiss RE, Singapore)
Tetsuyuki Ishii (CRIEPI, Japan)
Tomonao Kobayashi (Gifu Univ., Japan)
Takashi Minemoto (Ritsumeikan Univ., Japan)
Christos Monokroussos (TUV Rheinland, Germany)
Yasuyuki Ota (Univ. Miyazaki, Japan)
Takeshi Tayagaki (AIST, Japan)

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Zhengxin Liu (SIMIT, China)

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Sub-area Chair:
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Kazuhiro Gotoh (Niigata Univ., Japan)
Zahcary Holman (ASU, USA)
Shinya Kato (Nagoya Tech., Japan)
Vamsi Krishna Komarala (IIT Delhi, India)
Kazuo Muramatsu (Namics, Japan)
Nitin Nampalli (BT Imaging, Australia)
Tappei Nishihara (JASRI, Japan)
Marisa di Sabatino (NTNU, Norway)
Martin Schubert (FhISE, Germany)
Hee-eun Song (KIER, Korea)
Xinbo Yang (Soochow Univ., China)
Xuegong Yu (Zhejiang Univ., China)

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Sub-area Chair:
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Daisuke Adachi (KANEKA, Japan)
Xuemei Cheng (Singulus, Germany)
Marwan Dhamrin (Osaka Univ./Toyo Aluminium, Japan)
Bram Hoex (UNSW, Australia)
Olindo Isabella (TU Delft, The Netherlands)
Yasuaki Ishikawa (AGU, Japan)
Shin Woei Leow (NUS, USA)
Jun Lv (LONGi Solar, China)
Byungsul Min (ISFH, Germany)
Hiroto Oowada (Shinetsu Chemical, Japan)
Hitoshi Sai (AIST, Japan)
Kwanyong Seo (UNIST, Korea)
Yasushi Sobajima (Gifu Univ., Japan)
Tomihisa Tachibana (AIST, Japan)
Hiroaki Takahashi (Kyocera, Japan)
Rasit Turan (Middle East Tech. Univ., Turkey)

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Yoshitaro Nose (Kyoto Univ., Japan)

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Sub-area Chair:
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Masatoshi Yanagida (NIMS, Japan)

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Tingli Ma (Kyushu Institute of Technology, Japan)
Keisuke Tajima (Riken, Japan)

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Sub-area Chair:
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Shogo Ishizuka (AIST, Japan)

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Yukiko Kamikawa (AIST, Japan)
Junho Kim (Incheon National Univ., Korea)
Takashi Minemoto (Ritsumeikan Univ., Japan)
Takahito Nishimura (Science Tokyo, Japan)
Hitoshi Tomita (Idemitsu, Japan)
Deliang Wang (Univ. Sci. Tech. China, China)
Kenji Yoshino (Univ. Miyazaki, Japan)

Sub-area 4-3
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Stephen Bremner (UNSW, Australia)

-- Members
David Lackner (FhISE, Germany)
Emily Warren (NREL, USA)
Kentaroh Watanabe (Univ. Tokyo, Japan)

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Area Chair:
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Shen Qing (Univ. Electro-Communications, Japan)

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Sub-area Chair:
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Takuro Murakami (AIST, Japan)

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Giulia Grancini (Univ. Pavia, Italy)
Tamotsu Horiuchi (EneCoat Technologies, Japan)
Yasuaki Ishikawa (AGU, Japan)
Pongsakom Kanjanaboos (Mahidol Univ., Thailand)
Hao-Wu Lin (National Tsing Hua Univ., Taiwan)
Artem Musiienko (HZB, Germany)
Zhijun Ning (ShanghaiTech Univ., China)
Kazuyuki Nonomura (Univ. Tokyo, Japan)
Akinori Saeki (Osaka Univ., Japan)
Hyunjun Shin (Sungkyunkwan Univ., Korea)
Takeshi Tayagaki (AIST, Japan)

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Sub-area Chair:
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Tooru Tanaka (Saga Univ., Japan)
Yasuhiro Tachibana (RMIT Univ., Australia)

-- Members
Shigeo Asahi (Kobe Univ., Japan)
Shujuan Huang (Macquarie Univ., Australia)
Ryousuke Ishikawa (Tokyo City Univ., Japan)
Wanli Ma (Soochow Univ., Japan)
Takashi Minemoto (Ritsumeikan Univ., Japan)
Richard Murdey (Kyoto Univ., Japan)
Tomah Sogabe (Univ. Electro-Communications., Japan)

Cross-cutting areas

Sub-area CC-1
Sub-area Chair:
Ryousuke Ishikawa (Tokyo City Univ., Japan)
Yasuaki Ishikawa (AGU, Japan)

-- Members
Fan Fu (EMPA, Switzerland)
Dong-Won Kang (Chung-Ang Univ., Korea)
Wenzhu Liu (SIMIT, China)
Takuya Matsui (AIST, Japan)
Miyuki Shiokawa (Toshiba, Japan)
Yasuhiro Shirai (NIMS, Japan)
Yiwen Zhang (Shanghai Normal Univ., China)

Sub-area CC-2
Sub-area Chair:
Kentaro Kutsukake (RIKEN, Japan)

-- Members
Takuto Kojima (AIST, Japan)
Hiroaki Kudo (Nagoya Univ., Japan)

Sub-area CC-3
Sub-area Chair:
Katsushi Fujii (RIKEN, Japan)

-- Members
Joel W. Ager (Lawrence Berkeley National Lab., USA)
Jun-Seok Ha (Chonnam National Univ., Korea)
Takayuki Ichikawa (Hiroshima Univ., Japan)
Tatsuoki Kono (Univ. Tokyo, Japan)
Seigo Ito (Hyogo Univ. Japan)

Special Events

Networking Lunch for Women in Photovoltaics

(Civic Salon, 1st Floor, Kiramesse NUMAZU, Plaza Verde, Nov. 13,12:30-13:30 JST)

Registration fee is charged with pre-registration. The fee includes a lunch box (Regular or Vegetarian), First come first served for 50 seats

Style: Networking lunch with presentation and panel discussion

Onsite participation includes a lunch box (Regular or Vegetarian).

This event would be good opportunity for young women to meet senior female researchers (role models) working in the field of photovoltaics and also good opportunity for all participants for networking.

Agenda

Keynote speech: Dr. Ulrike Jahn (Fraunhofer CSP, Germany)

Panel discussion moderated by Izumi KAIZUKA, RTS Corporation

Panelist:

Dr. Ulrike Jahn (Fraunhofer CSP, Germany)

Prof. Xiaodan Zhang (Nankai Univ., China)

Dr. Yukiko Kamikawa (AIST, Japan)

Dr. Veronica Bermudez Benito (HBKU-QEERI, Qatar)

Satellite Events

IEA PVPS Workshop @ PVSEC-35 Numazu, Japan

[Workshop organizer]：IEA PVPS, NEDO and PVSEC 35

[Date: Tuesday 12th November 2024

[Venue]: Room 407, 4F, Plaza Verde

[Participation Fee]: Free for PVSEC-35 participants

【Details】

14:00-15:30　Session 1: PV market and Sustainability

Co-organized by Task 1 (Strategic PV Analysis & outreach) and Task 12 (PV Sustainability Activities)

- Greetings from IEA PVPS Chair, Daniel Mugnier
- Trends of PV market, Gaëtan Masson, IEA PVPS Task 1/ Becquerel Institute, Belgium
- Overview of Task 12, Garvin Heath, IEA PVPS Task 12/ NREL, USA
- Solar panel recycling technology: from fundamentals to applications Yansong Shen, UNSW, Australia
- PV recycling potential, Keiichi Komoto, Mizuho R&T, Japan
- Discussion

16:00-17:30　Session 2: Extreme Weather Impacts on PV system Reliability

Organized by Task 13 (Reliability and Performance of Photovoltaic Systems

- Introduction (T13 Activities), Ulrike Jahn, FhG-CSP, Germany
- Snow Impacts, Alexander Granlund, RI.SE, Switzerland
- Soiling Impacts, Leonardo Micheli, Sapienza University Rome, Italy
- Tropical Cyclone Impacts, Laurie Burnham, Sandia National Laboratory, USA
- Structural Damages, Kohta Sato, SPEI, Japan
- Wrap-up, Tadanori Tanahashi, AIST, Japan

17:30-19:00　Session 3: Agrivoltaics Action Group

Co-organized by IEA PVPS APV Action Group, ENEA (Italian National Agency for New Technologies, Energy and Sustainable Economic Development), Japan Community Power Association, Institute for Sustainable Energy Policies (ISEP), and Japan Solar Sharing Federation, Supported by A Japan Fund for Global Environment grant of the Environmental Restoration and Conservation Agency

- Greetings from Tetunari Iida, ISEP
- About the Agrivoltaics Action Group of IEA PVPS, Alessandra Scognamiglio, ENEA, Italy and Jordan Macknick, NREL, USA
- Agrivoltaics in ASEAN Countries
- Agrivoltaics in ASEAN Countries, Thomas Reindl, The Solar Energy Research Institute

of Singapore (SERIS)

- Japanese status, regulatory aspects and issues, Izumi Kaizuka, RTS Corporation
- Practical application of APV for small-scale farmers in Japan applicable to the global south, Kazunori Oda, Agritree Inc.
- Design Optimization of Agri-Photovoltaic Systems in Different Climate Regions, Daisuke Yajima, Miyazaki University
- The point of view of the farmers, Small-scale Agrivoltaics and Carbon Farming in Japan, Masafumi Shigeie, WakuWaku Solar Sharing Farm in Higashi-hirosima
- Wrap-up, Alessandra Scognamiglio, ENEA

4th Asian Nations Joint Workshop on PV

【Organizer】The Japan Photovoltaic Society (J-PVS)

【Date】Nov. 14th, 2024

【Venue】Plaza Verde, 301+302 (3F)

【Registration fee】Free (only for PVSEC-35 participants)

14:00-14:05	Keisuke Ohdaira (JAIST, Japan)	Welcome address
14:05–14:25	Keisuke Ohdaira (JAIST, Japan)	Current situation of PV in Japan
14:25–14:45	Yibo Wang (CAS, China)	Status and prospects of DC-integrated photovoltaic generation system
14:45–15:05	Donghwan Kim (Korea Univ., Korea)	Recent PV activities in Korea
15:05–15:25	Amornrat Limmanee (NSTDA, Thailand)	Thailand PV Research & Development and Policy Roadmap
15:25–15:40	Break	
15:40–16:00	Rasit Turan (Middle East Technical Univ., Turkey)	PV manufacturing and R&D activities in Turkey
16:00–16:20	Nowshad Amin (American International Univ. Bangladesh, Bangradesh)	Current Status, Challenges and Prospects of Solar PV in Bangladesh's Energy Roadmap
16:20–16:40	Vamsi Krishna Komarala (IIT Delhi, India)	Solar photovoltaics in India: An overview of research and development, industry expansion, obstacles, and future opportunities
16:40–17:00	Thomas Reindl (SERIS, Singapore)	Overview and Outlook of Solar PV in Singapore
17:00–17:05	Yuzuru Ueda (Tokyo Univ. Sci., Japan)	Closing Remarks

Tutorials

Titorial | Tutorial

Sun. Nov 10, 2024 10:30 AM - 12:45 PM JST | Sun. Nov 10, 2024 1:30 AM - 3:45 AM UTC 401(4F)

[T1] Tutorials

10:30 AM - 11:30 AM JST | 1:30 AM - 2:30 AM UTC

[T-01]

Fundamental of Solar Cells

Yasuaki Ishikawa (Aoyama Gakuin Univ., Japan)

11:45 AM - 12:45 PM JST | 2:45 AM - 3:45 AM UTC

[T-02]

Solar cell characterization

Takeaki Sakurai (Univ. Tsukuba, Japan)

Titorial | Tutorial

Sun. Nov 10, 2024 2:00 PM - 6:30 PM JST | Sun. Nov 10, 2024 5:00 AM - 9:30 AM UTC 401(4F)

[T2] Tutorials

2:00 PM - 3:00 PM JST | 5:00 AM - 6:00 AM UTC

[T-03]

Perovskite Solar Cells

Xiaodang Zhang (Nankai Univ., China)

3:15 PM - 4:15 PM JST | 6:15 AM - 7:15 AM UTC

[T-04]

Reliability Issues and Future Prospects of Photovoltaic Modules

Atsushi Masuda (Niigata Univ., Japan)

4:30 PM - 5:30 PM JST | 7:30 AM - 8:30 AM UTC

[T-05]

Electric Vehicle Trends and LCA, Sector Coupling with Photovoltaic Power Generation

Keiichiro Sakurai (AIST, Japan)

5:30 PM - 6:30 PM JST | 8:30 AM - 9:30 AM UTC

[T-06]

Policy and Future of PV

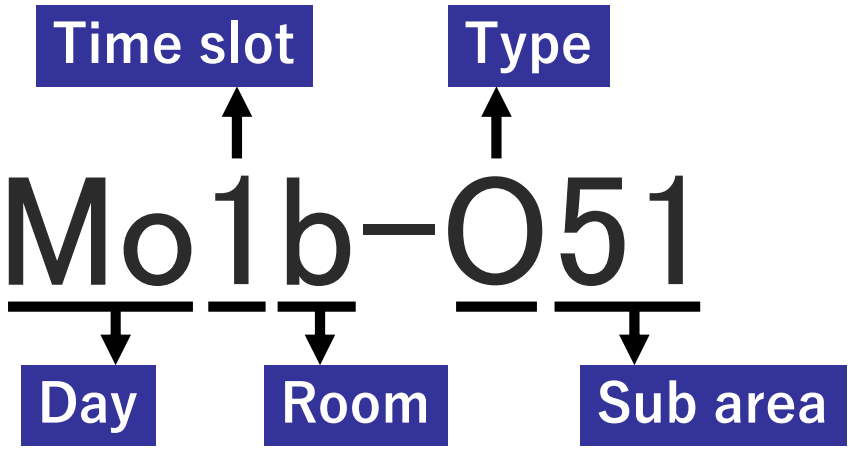
Takashi Oozeki (AIST, Japan)

Technical Program

As of Nov. 1st, 2024

Session Code

L: Plenary session
O: Oral session
P: Poster session



Mo: Monday, Nov. 11
Tu: Tuesday, Nov. 12
We: Wednesday, Nov. 13
Th: Thursday, Nov. 14
Fr: Friday, Nov. 15

a: Hall A
b: Hall B
c: 301+302
d: 401
e: 402
f: 407

Opening | Opening

Mon. Nov 11, 2024 2:00 PM - 2:55 PM JST | Mon. Nov 11, 2024 5:00 AM - 5:55 AM UTC Convention Hall A(1F)

[Mo3a-L] Opening I

Session Chair(s):Yukiko Kamikawa(AIST), Yuzuru Ueda(Tokyo Univ. Science)

2:00 PM - 2:05 PM JST | 5:00 AM - 5:05 AM UTC

[Mo3a-L-01]

Opening Address / Akira Yamada（Tokyo Tech.）/ General Chair of PVSEC -35

2:05 PM - 2:10 PM JST | 5:05 AM - 5:10 AM UTC

[Mo3a-L-02]

Welcome Address (Video Message) / Yasutomo Suzuki, Governor of Shizuoka Prefecture

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2:10 PM - 2:15 PM JST | 5:10 AM - 5:15 AM UTC

[Mo3a-L-03]

Welcome Address / Shuichi Yorishige, Meyor of Numazu

2:15 PM - 2:35 PM JST | 5:15 AM - 5:35 AM UTC

[Mo3a-L-04]

Japan's Strategy on Next-Generation Solar Cells

*Masaki Higurashi[1] (1. Agency for Natural Resources and Energy (Japan))

2:35 PM - 2:55 PM JST | 5:35 AM - 5:55 AM UTC

[Mo3a-L-05]

The potential of diamond quantum sensors for efficient energy management based on photovoltaics

*Mutsuko Hatano[1] (1. Tokyo Indusiate of Technology (Japan))

Opening | Opening

Mon. Nov 11, 2024 2:55 PM - 3:55 PM JST | Mon. Nov 11, 2024 5:55 AM - 6:55 AM UTC Convention Hall A(1F)

[Mo3a-A] Award Ceremony

Session Chair: Makoto Konagai (Tokyo City Univ.)

Opening | Opening

Mon. Nov 11, 2024 4:10 PM - 5:30 PM JST | Mon. Nov 11, 2024 7:10 AM - 8:30 AM UTC Convention Hall A(1F)

[Mo4a-L] Opening II

Session Chair(s):Atsushi Wakamiya (Kyoto Univ.), Yuzuru Ueda(Tokyo Univ. Science)

4:10 PM - 4:30 PM JST | 7:10 AM - 7:30 AM UTC

[Mo4a-L-01]

Solar Energy and the Path to Decarbonization in the United States

*Lenny Tinker[1] (1. U.S. Dept of Energy Solar Energy Technologies Office (United States of America))

4:30 PM - 4:50 PM JST | 7:30 AM - 7:50 AM UTC

[Mo4a-L-02]

TBA

*Zhengxin Liu[1] (1. Shanghai Institute of Microsystem & Information Technology, Chinese Academy of Sciences (China))

4:50 PM - 5:10 PM JST | 7:50 AM - 8:10 AM UTC

[Mo4a-L-03]

TBA

*Anis Jouini[1] (1. ECM Greentech (France))

5:10 PM - 5:30 PM JST | 8:10 AM - 8:30 AM UTC

[Mo4a-L-04]

NEDO’s Activities for Solar PV

*Atsuyuki Suzuki[1] (1. NEDO (Japan))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Mon. Nov 11, 2024 9:00 AM - 10:30 AM JST | Mon. Nov 11, 2024 12:00 AM - 1:30 AM UTC Convention Hall B(3F)

[Mo1b-O51] Sub area 5-1:Interface engineering of perovskite solar cells 1

Session Chair(s): Artem Musiienko (HZB), Hyunjung Shin (SKKU)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[Mo1b-O51-01 (Invited)]

Efficient and stable perovskite solar cells through interface engineering

*Jangwon Seo[1] (1. Korea Advanced Institute of Science and Technology (KAIST) (Korea))

9:30 AM - 9:45 AM JST | 12:30 AM - 12:45 AM UTC

[Mo1b-O51-02]

Effect of Additive on the Photovoltaic Performance of Perovskite Solar Cells
-Interface, Grain boundary, and Crystallinity-

*Masatoshi Yanagida[1], Dhruba B. Khadka[1], Yasuhiro Shirai[1], Kenjiro Miyano[1] (1. National Institute for Materials Sciences (NIMS) (Japan))

9:45 AM - 10:00 AM JST | 12:45 AM - 1:00 AM UTC

[Mo1b-O51-03]

Sequential Evaporation Process for Fabrication of Fully Vacuum-Processed Perovskite Solar Cells: Effect of HTL on Morphology and Crystallization

*Alexander Diercks[1], Julian Petry[1], Thomas Feeney[1], Roja Singh[1], Hang Hu[1], Ulrich Wilhelm Paetzold[1], Paul Fassl[1] (1. Karlsruhe Institute of Technology (KIT) (Germany))

10:00 AM - 10:15 AM JST | 1:00 AM - 1:15 AM UTC

[Mo1b-O51-04]

Regulating Phase Homogeneity by Self-Assembled Molecules for Enhanced Efficiency and Stability of Inverted Perovskite Solar Cells

*Xi Wang[1,2], Renjun Guo[2], Yi Hou[1,2] (1. Department of Chemical and Biomolecular Engineering,National University of Singapore (Singapore), 2. Solar Energy Research Institute of Singapore (SERIS) (Singapore))

10:15 AM - 10:30 AM JST | 1:15 AM - 1:30 AM UTC

[Mo1b-O51-05]

Stabilized heterointerface for high-efficiency and stable p-i-n perovskite solar cells

*Zhen Li[1] (1. University of New South Wales (Australia))

Sub area 5-2: Emerging Materials and New Concepts | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-2: Emerging Materials and New Concepts

Mon. Nov 11, 2024 9:00 AM - 10:30 AM JST | Mon. Nov 11, 2024 12:00 AM - 1:30 AM UTC 301+302(3F)

[Mo1c-O52] Sub area 5-2: Quantum Dot Solar Cells

Session Chair(s): Qing Shen (the University of Electro-Communications), Zhi-Long Zhang (South China Univ. of Tech.)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[Mo1c-O52-01 (Invited)]

Colloidal Quantum Dot Solar Cells

*Wanli Ma[1] (1. Soochow University (China))

9:30 AM - 9:45 AM JST | 12:30 AM - 12:45 AM UTC

[Mo1c-O52-02]

Exploration on Stable PbS Quantum Dot Solar Ink for Photovoltaics Application

*Xintong Zhang[1], Yinglin Wang[1], Chao Wang[1] (1. Northeast Normal University (China))

9:45 AM - 10:00 AM JST | 12:45 AM - 1:00 AM UTC

[Mo1c-O52-03]

Quantum Dot Photovoltaic Materials and Devices

*Zeke Liu[1], Guozheng Shi[1] (1. Soochow university (China))

10:00 AM - 10:15 AM JST | 1:00 AM - 1:15 AM UTC

[Mo1c-O52-04]

Synergistic Control and Passivation of Interfaces in PbS Quantum Dot Solar Cells

*CHAO DING[1,2], Dandan Wang[2], Shuzi Hayase[2], Taizo Masuda[3], Zhigang Zou[4], Ruixiang Wang[5], Qing Shen[2] (1. Institute of New Energy and Low-Carbon Technology, Sichuan University (China), 2. Faculty of Informatics and Engineering, The University of Electro-Communications (Japan), 3. CN development division, Toyota Motor Corporation (Japan), 4. Eco-Materials and Renewable Energy Research Center (ERERC), Jiangsu Key Laboratory for Nano Technology (China), 5. Beijing Engineering Research Centre of Sustainable Energy and Buildings, Beijing University of Civil Engineering and Architecture (China))

10:15 AM - 10:30 AM JST | 1:15 AM - 1:30 AM UTC

[Mo1c-O52-05]

Eco-friendly Solution-processed AgBiS2 Nanocrystal Solar Cells

*Yongjie Wang[1], Gerasimos Konstantatos[1,2] (1. ICFO-The Institute of Photonic Sciences (Spain), 2. ICREA-Institució Catalana de Recerca i Estudia Avançats (Spain))

Sub area 3-1: Materials, Processes, Fundamentals | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-1: Materials, Processes, Fundamentals

Mon. Nov 11, 2024 9:00 AM - 10:30 AM JST | Mon. Nov 11, 2024 12:00 AM - 1:30 AM UTC 401(4F)

[Mo1d-O31] Sub area 3-1: Passivating contacts

Session Chair(s):Xinbo Yang(Soochow Univ.), Kazuhiro Gotoh(Niigata Univ.)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[Mo1d-O31-01 (Invited)]

Revealing the Properties of Si Passivating Contacts Using Advanced STEM Analysis

*Harvey Guthrey[1] (1. NREL (United States of America))

9:30 AM - 9:45 AM JST | 12:30 AM - 12:45 AM UTC

[Mo1d-O31-02]

Nanopinhole-enabled passivated contacts

*Paul Stradins[1], William Nemeth[1], Dirk Steyn[2,1], Harvey Guthrey[1], Sumit Agarwal[2], David L. Young[1] (1. National Renewable Energy Laboratory (United States of America), 2. Colorado School of Mines (United States of America))

9:45 AM - 10:00 AM JST | 12:45 AM - 1:00 AM UTC

[Mo1d-O31-03]

Fully transparent hole-selective MoO_x passivating contact enabling 22.5% efficient silicon solar cells

*Gabriel Bartholazzi[1], Mohamed Shehata[1], Christian Samundsett[1], Daniel Macdonald[1], Lachlan Black[1] (1. Australian National University (Australia))

10:00 AM - 10:15 AM JST | 1:00 AM - 1:15 AM UTC

[Mo1d-O31-04]

Silicon heterojunction solar cells featuring localized front contacts

*Sebastian Smits[1], Yifeng Zhao[1], Paul Procel Moya[1], Olindo Isabella[1] (1. Delft University of Technology (Netherlands))

10:15 AM - 10:30 AM JST | 1:15 AM - 1:30 AM UTC

[Mo1d-O31-05]

A Study on the Passivation Enhancement Mechanism of TiO_X/Si Heterostructure Using Markov Chain Monte Carlo Method

*Yuto Michishita[1], Kazuhiro Gotoh[1,2,3], Shohei Fukaya[1], Yasuyoshi Kurokawa[1], Noritaka Usami[1,4] (1. Nagoya University (Japan), 2. Niigata University (Japan), 3. IRCNT,Niigata University (Japan), 4. Institutes of Innovation for Future Society, Nagoya University (Japan))

Sub area 2-1: Integrated PV and Advanced Applications of Photovoltaics | Area2: System Engineering and Field Performance：Sub area 2-1: Integrated PV and Advanced Applications of Photovoltaics

Mon. Nov 11, 2024 9:00 AM - 10:30 AM JST | Mon. Nov 11, 2024 12:00 AM - 1:30 AM UTC 402(4F)

[Mo1e-O21] Sub area 2-1: Advanced PV Devides and Modules

Session Chair(s):Hiroyuki Toyota(ISAS/JAXA), Mitsuru Imaizumi(Sanjo City Univ.)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[Mo1e-O21-01 (Invited)]

Realization of Space Qualified III-V Thin-Film Solar Cell Modules

*Hiroshi Yamaguchi[1], Hiroyuki Juso[1], Hidetoshi Washio[1], Tatsuya Takamoto[1], Tetsuya Nakamura[2], Shusaku Kanaya[2], Taishi Sumita[2], Hiroyuki Toyota[2] (1. Sharp Energy Solutions Corporation (Japan), 2. Japan Aerospace Exploration Agency (Japan))

9:30 AM - 9:45 AM JST | 12:30 AM - 12:45 AM UTC

[Mo1e-O21-02]

Highly Efficient Coloured Silicon Solar Cells

*Yuanxun Liao[1], Chengye Jia[1], Yajie Jiang[1] (1. University of New South Wales (Australia))

9:45 AM - 10:00 AM JST | 12:45 AM - 1:00 AM UTC

[Mo1e-O21-03]

Evaluation of incident light characteristics of vehicle-integreted photovoltaic devices (VIPV) installed on the roofs and hoods of all types of vehicles

*Shota Matsushita[1], Kenji Araki[1], Yasuyuki Ota[1], Kensuke Nisihoka[1] (1. University of Miyazaki (Japan))

10:00 AM - 10:15 AM JST | 1:00 AM - 1:15 AM UTC

[Mo1e-O21-04]

Wave impact load testing of PV modules for floating applications

*Min Hsian Saw[1], Si Liang Heng[2], Shin Woei Leow[1], Mauro Pravettoni[3] (1. National University of Singapore, Solar Energy Research Institute of Singapore (Singapore), 2. National University of Singapore, Engineering Science Programme (Singapore), 3. Technology Innovation Institute (TII), Renewable and Sustainable Energy Research Center (United Arab Emirates))

10:15 AM - 10:30 AM JST | 1:15 AM - 1:30 AM UTC

[Mo1e-O21-05]

Outdoor performance of solar to gas system based on Si photovoltaic module

*Yasuyuki Ota[1], Kensuke Nishioka[1] (1. University of Miyazaki (Japan))

Sub area 1-2: Grid Integration and Energy Management | Area1: PV in Sustainable Energy System：Sub area 1-2: Grid Integration and Energy Management

Mon. Nov 11, 2024 9:00 AM - 10:30 AM JST | Mon. Nov 11, 2024 12:00 AM - 1:30 AM UTC 407(4F)

[Mo1f-O12] Sub area 1-2: Grid Integration and Energy Management

9:00 AM - 9:15 AM JST | 12:00 AM - 12:15 AM UTC

[Mo1f-O12-01]

Nowcasting of the hourly global horizontal irradiance using deep learning methodology on multimodal data

*Onon Bayasgalan[1], Atsushi Akisawa[1], Amarbayar Adiyabat[2] (1. Tokyo University of Agriculture and Technology (Japan), 2. National University of Mongolia (Mongolia))

9:15 AM - 9:30 AM JST | 12:15 AM - 12:30 AM UTC

[Mo1f-O12-02]

Solar irradiance Forecasting Using Vision Transformer with 2D Relative Positional Embedding

*Yuto Tanaka[1], Shinji Wakao[1] (1. Waseda University (Japan))

9:30 AM - 9:45 AM JST | 12:30 AM - 12:45 AM UTC

[Mo1f-O12-03]

Interval forecasting of solar radiation using non-parametric distribution and interval correction using random forests

*Tomotaka Toda[1], Jindan Cui[1], Yuzuru Ueda[1], Kenji Utsunomiya[2], Jun Sasaki[2], Maki Okada[2], Koji Yamaguchi[2] (1. Tokyo University of Science (Japan), 2. Japan Weather Association (Japan))

9:45 AM - 10:00 AM JST | 12:45 AM - 1:00 AM UTC

[Mo1f-O12-04]

Integration of probabilistic solar forecasting to improve photovoltaic microgrid performance

*Ghjuvan Antone Faggianelli[1], Sarah Ouedraogo[1], Mohammed Asloune[1], Jean-Laurent Duchaud[1], Gilles Notton[1] (1. University of Corsica (France))

10:00 AM - 10:15 AM JST | 1:00 AM - 1:15 AM UTC

[Mo1f-O12-05]

Analysis on Hit Rate Changing Trend of Positive/Negative Error Sign of A Day-ahead Forecast of Aggregated PV Power Output

*Miyu Nakamura[1], Chiyori T Urabe[1], Takeyoshi Kato[1] (1. Nagoya university (Japan))

10:15 AM - 10:30 AM JST | 1:15 AM - 1:30 AM UTC

[Mo1f-O12-06]

Analysis of GEPS forecast characteristics in case TEPCO area solar irradiation forecast occures serious error

*Takahiro Takamatsu[1], Shuntaro Nakayama[1], Kou Nakajima[1], Hideaki Ohtake[1], Takashi Oozeki[1], Koji Yamaguchi[2] (1. National Institute of Advanced Industrial Science and Technology (Japan), 2. Japan Weather Association (Japan))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Mon. Nov 11, 2024 11:00 AM - 12:30 PM JST | Mon. Nov 11, 2024 2:00 AM - 3:30 AM UTC
Convention Hall B(3F)

[Mo2b-O51] Sub area 5-1:Interface engineering of perovskite solar cells 2

Session Chair(s): Hyunjung Shin (SKKU), Artem Musiienko (HZB)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC
[Mo2b-O51-01 (Invited)]
Perovskite Interface Geometry and Intra-Crystal Disorder

*Yuanyuan Zhou[1] (1. HKUST (Hong Kong))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC
[Mo2b-O51-02]
Potassium Chloride Passivation for Radio-Frequency-Sputtered SnO_2 to Enhance the Efficiency and Eliminate Hysteresis of Perovskite Solar Cells

*Seok-Hyun Jeong[1], Ji-Seong Hwang[1], Jae-Keun Hwang[3], Sang-Won Lee[1], Wonkyu Lee[1], Solhee Lee[3], Dowon Pyun[1], Sujin Cho[1], Youngho Choe[3], Hae-Seok Lee[2], Donghwan Kim[1], Yoonmook Kang[2] (1. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 2. Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea), 3. Institute of Energy Technology, Korea University, Republic of Korea (Korea))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC
[Mo2b-O51-03]
Pentafulvalene-Fused Fluorinated Compound Boosts Perovskite Solar Cell Performance

*Kun-Mu Lee[1], Wei-Hao Chiu[1], Yan-Duo Lin (1. Chang Gung University (Chinese Taipei))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC
[Mo2b-O51-04]
Textured Perovskite/Silicon Tandem Solar Cells Achieving Over 30% Efficiency Promoted by 4-Fluorobenzylamine Hydroiodide

Jingjing Liu[1], Biao Shi[1], Qiaojing Xu[1], Yuncheng Li[1], Yuxiang Li[1], Pengfei Liu[1], Zetong SunLi[1], Xuejiao Wang[1], Cong Sun[1], Wei Han[1], Diannan Li[1], Sanlong Wang[1], Dekun Zhang[1], Guangwu Li[1], Xiaona Du[1], Ying Zhao[1], *Xiaodan Zhang[1] (1. Nankai University (China))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC
[Mo2b-O51-05]
High-performance bifacial perovskite solar cells enabled by single-walled carbon nanotubes

*Jing Zhang[1], Hui-Ming Cheng[1,2], S. Ravi P. Silva[1], Wei Zhang[1] (1. Advanced Technology Institute (ATI), University of Surrey, Guildford, Surrey, UK. (UK), 2. Institute of Technology for Carbon Neutrality, Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences, Shenzhen, 518055, P.R.China. (China))

Sub area 1-2: Grid Integration and Energy Management | Area1: PV in Sustainable Energy System：Sub area 1-2: Grid Integration and Energy Management

Mon. Nov 11, 2024 11:00 AM - 12:30 PM JST | Mon. Nov 11, 2024 2:00 AM - 3:30 AM UTC 301+302(3F)

[Mo2c-O12] Sub area 1-2: NEDO Project and Grid Integration

Session Chair(s): Ghjuvan Antone Faggianelli(Univ. of Corsica), Shinji Wakao(Waseda Univ.)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Mo2c-O12-01 (Invited)]

NEDO Grid Integration Projects

*Yuka Ogasawara[1] (1. NEDO (New Energy and Industrial Technology Development Organization) (Japan))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Mo2c-O12-02]

Challenges and possibilities of a power system evolution in the transition to carbon neutrality in Japan

*Kazuhiko Ogimoto[1], Yumiko Iwafune[1], Masaki Imanaka[1], Kazuto Kataoka[1], Shuhei Segawa[2], Hitoshi Azuma[2], Akira Isonaga[2], Suguru Fukutome[2] (1. The University of Tokyo (Japan), 2. J-POWER Business Service (Japan))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Mo2c-O12-03]

Control design of grid forming inverter for photovoltaic generation with virtual inertia characteristic

*Junichi ARAI[1], Ryuichi Yokoyama[2], Takahiko Yamauchi[3], Satoshi Miyazaki[4], Dai Orihara[5], Jun Hashimoto[6] (1. Energy and Environment Technology Research Institute (Japan), 2. Energy and Environment Technology Research Institute (Japan), 3. Tokyo Electric Power Company Holdings, Inc. (Japan), 4. Tokyo Electric Power Company Holdings, Inc. (Japan), 5. National Institute of Advanced Industrial Science and Technology (Japan), 6. National Institute of Advanced Industrial Science and Technology (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Mo2c-O12-04]

Day-Ahead plan revision utilizing the intraday market for securing reserve power in PV power plants with batteries

*Yihe Wei[1], Jindan Cui[1], Xue Fang[1], Takashi Oozeki[2], Yuzuru Ueda[1] (1. Tokyo University of Science (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Mo2c-O12-05]

Coordinated control method of an off-grid system for a data center, PV, and wind power plants

*Ayaka Nakamura[1], Chiyori T. Urabe[1], Takeyoshi Kato[1], Mikimasa Iwata[1] (1. Nagoya University (Japan))

Sub area 3-2: Cells and Modules | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-2: Cells and Modules

Mon. Nov 11, 2024 11:00 AM - 12:30 PM JST | Mon. Nov 11, 2024 2:00 AM - 3:30 AM UTC 401(4F)

[Mo2d-O32] Sub area 3-2: TOPCon, back-contact and other high-efficiency silicon solar cells

Session Chair(s):Olindo Isabella(TU Delft), Hitoshi Sai(AIST)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Mo2d-O32-01 (Invited)]

SILICON SOLAR CELL RESEARCH AT KIER AND CENTER FOR ADVANCED SOLAR PV TECHNOLOGY

*Hee-eun Song[1] (1. KIER (Korea))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Mo2d-O32-02]

p-type/*n*-type polysilicon emitter for self-aligned back contact solar cells

Erik Hoffmann[1], Philip Jäger[2], *Geoffrey Gregory[1], Muhammad Khan[1], Nabeel Khan[1], Thorsten Dullweber[2], Rolf Brendel[2,3], Massimo Centazzo[1] (1. EnPV GmbH (Germany), 2. Institute for Solar Energy Research Hamelin (ISFH) (Germany), 3. Institute for Solid State Physics, Leibniz Univ. (Germany))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Mo2d-O32-03]

Improving the Reliability of TOPCon Technology through Laser-Enhanced Contact Firing

*Xinyuan Wu[1], Xutao Wang[1], Weiguang Yang[2], Jianjun Nie[2], Jing Yuan[2], Muhammad Umair Khan[1], Alison Ciesla[1], Chandany Sen[1], Zhencong Qiao[2], Bram Hoex[1] (1. University of New South Wales (Australia), 2. Jolywood (Taizhou) Solar Technology Co., Ltd. (China))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Mo2d-O32-04]

High resolution study of thermally grown interfacial oxide thickness during poly-Si passivating contact formation

*Anitta Rose Varghese[1], Rabin Basnet[1], Sieu Pheng Phang[1], Felipe Kermer[2], Frank Brink[2], Daniel Macdonald[1] (1. School of Engineering, The Australian National University, Canberra (Australia), 2. Centre for Advanced Microscopy, The Australian National University, Canberra (Australia))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Mo2d-O32-05]

Efficient silicon solar cells with aluminum-doped zinc oxide-based passivating contact

Xinbo Yang Yang[1], *Kun Gao[1] (1. Soochow University (China))

Sub area CC-2: Artificial Intelligence in PV Development | Cross Cutting Areas：Sub area CC-2: Artificial Intelligence in PV Development

Mon. Nov 11, 2024 11:00 AM - 12:30 PM JST | Mon. Nov 11, 2024 2:00 AM - 3:30 AM UTC 402(4F)

[Mo2e-Oc2] Sub area CC-2: AI for PV Systems

Session Chair(s):Kentaro Kutsukake(RIKEN)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Mo2e-Oc2-01 (Invited)]

Advancements in Solar Radiation Forecasting using Deep Learning

*Jun Sasaki[1] (1. Japan Weather Association (Japan))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Mo2e-Oc2-02]

Machine learning for PV spectral mismatch correction

*Miguel Ángel Sevillano-Bendezú[1], Micaela Rodríguez-Peña[1], José María Ripalda[1] (1. Instituto de Micro y Nanotecnología (IMN-CNM, CSIC) (Spain))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Mo2e-Oc2-03]

Innovative Power Transfer Strategies for Photovoltaic Systems

*Emmanuel Bravin Daniel[1], Arul Franco[2], Deephlin Tarika[3] (1. Stella Mary's College of Engineering (India), 2. University College of Engineering Nagercoil (India), 3. Stella Mary's College of Engineering (India))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Mo2e-Oc2-04]

Intelligent Control Strategy of a Battery Energy Storage for a Climate-Controlled Greenhouse with a High Proportion of Local Renewable Energy

Akihiro Funaki[1], *Jorge Solis[1], David Olsson[2], Magnus Nilsson[2] (1. Karlstad University (Sweden), 2. Glava Energy Center (Sweden))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Mo2e-Oc2-05]

TRPL analysis of perovskite by physics-based machine learning on desktop computers

*Hualin Zhan[1], Klaus Weber[1], Kylie Catchpole[1] (1. Australian National University (Australia))

Sub area CC-3: Solar to X; Sciences, Materials and Devices | Cross Cutting Areas：Sub area CC-3: Solar to X; Sciences, Materials and Devices

Mon. Nov 11, 2024 11:00 AM - 12:30 PM JST | Mon. Nov 11, 2024 2:00 AM - 3:30 AM UTC 407(4F)

[Mo2f-Oc3] Sub area CC-3: Solar to X (1); Sciences, Materials and Devices

Session Chair(s):Takayuki Ichikawa(Hiroshima Univ.), Takeharu Murakami(RIKEN)

11:00 AM - 11:15 AM JST | 2:00 AM - 2:15 AM UTC

[Mo2f-Oc3-01]

Photo-enhanced catalytic performances in zinc-air battery using Cu-Sn-Se as the photocathodes.

*You-Chang Hong[1] (1. CHANG-GENG University, Chinese Taipei (Chinese Taipei))

11:15 AM - 11:30 AM JST | 2:15 AM - 2:30 AM UTC

[Mo2f-Oc3-02]

Natural Rubber Latex Foam with ZnO Photocatalysts for Antibacterial Efficiency

*Kamonthip Singbumrung[1,4], Yeampon Nakaramontri[2], Chotiros Dokkhan[3], Pasaree Laokijcharoen[3], Surawut Chuangchote[1,4] (1. Department of Tool and Materials Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (KMUTT), 126 Prachauthit Rd., Bangmod, Thungkru, Bangkok 10140, Thailand. (Thailand), 2. Sustainable Polymer & Innovative Composites Material Research Group, Department of Chemistry, Faculty of Science, King Mongkut's University Thonburi (Thailand), 3. National Metal and Materials Technology Center (MTEC), National Science and Technology Development Agency (NSTDA), Thailand Science Park (Thailand), 4. Research Center of Advanced Materials for Energy and Environmental Technology (MEET), King Mongkut's University of Technology Thonburi (KMUTT) (Thailand))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Mo2f-Oc3-03]

Comparison between the direct-gap and silicon PV: science and technology

*Paul Stradins[1] (1. National Renewable Energy Laboratory (United States of America))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Mo2f-Oc3-04]

Two-step photon absorption in hematite/silicon photoanode for Z-Scheme water splitting

*Tomah Sogabe[1,2,3], Yoshitaka Okada[1,2] (1. Research Center for Advanced Science and Technology (RCAST), The University of Tokyo (Japan), 2. Graduate School of Engineering, The University of Tokyo (Japan), 3. The University of Electro-communications (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Mo2f-Oc3-05]

Estimating photovoltaic potential considering the shade using a three-dimensional city model

*Taiyo Kaneuchi[1], Ryosuke Atsumi[1], Hideyuki Matsumoto[2], Hideaki Araki[1] (1. National College of Technology, Nagaoka College (Japan), 2. Tokyo Institute of Technology (Japan))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Mo2f-Oc3-06]

FeCoNiCuSn High-entropy Catalysts for Ammonia Oxidation Using a Photovoltaic-Electrolysis Cell System

*Minseo Jeon[1], Chanmin Jo[1], Joon Young Kim[1,2], Il-Gu Kim[2], Gyoung Hwa Jeong[1], Uk Sim[1,2] (1. Korea Institute of Energy Technology (KENTECH) (Korea), 2. NEEL Science, INC. (Korea))

Sub area 1-1: Policy, Market, Finance and Deployment | Area1: PV in Sustainable Energy System：Sub area 1-1: Policy, Market, Finance and Deployment

Tue. Nov 12, 2024 9:00 AM - 9:30 AM JST | Tue. Nov 12, 2024 12:00 AM - 12:30 AM UTC
Convention Hall A(1F)

[Tu1a-L1] Plenary 1

Session Chair(s):Takashi Oozeki(AIST), Yuka Ogasawara(NEDO)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[Tu1a-L1-01]

Advances in Understand the Circular Economy for PV: PVPS Task 12 and NREL Research

*Garvin Heath[1] (1. National Renewable Energy Laboratory (United States of America))

Sub area 1-2: Grid Integration and Energy Management | Plenary

Tue. Nov 12, 2024 9:30 AM - 10:00 AM JST | Tue. Nov 12, 2024 12:30 AM - 1:00 AM UTC
Convention Hall A(1F)

[Tu1a-L1] Plenary 1

Session Chair(s):Takashi Oozeki(AIST), Yuka Ogasawara(NEDO)

9:30 AM - 10:00 AM JST | 12:30 AM - 1:00 AM UTC

[Tu1a-L1-02]

Redefining the Power System to Achieve Carbon Neutrality

*Hiroshi Okamoto[1] (1. TEPCO Power Grid Inc. (Japan))

Plenary | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-1: Materials, Processes, Fundamentals

Tue. Nov 12, 2024 10:00 AM - 10:30 AM JST | Tue. Nov 12, 2024 1:00 AM - 1:30 AM UTC
Convention Hall A(1F)

[Tu1a-L3] Plenary 3

Session Chair(s):Keisuke Ohdaira(JAIST), Zhengxin Liu(SIMIT)

10:00 AM - 10:30 AM JST | 1:00 AM - 1:30 AM UTC

[Tu1a-L3-01]

[Tentative] Hydrogen-induced defect dynamics in crystalline silicon solar cells

*Mariana Bertoni[1] (1. Arizona State University (United States of America))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Tue. Nov 12, 2024 11:00 AM - 12:30 PM JST | Tue. Nov 12, 2024 2:00 AM - 3:30 AM UTC
Convention Hall B(3F)

[Tu2b-O51] Sub area 5-1:Interface engineering and field testing of perovskite photovoltaics

Session Chair(s): Peter Chen (National Cheng Kung University (NCKU)), Pongsakorn Kanjanaboos (Mahidol University)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Tu2b-O51-01 (Invited)]

Photovoltaic potential of tin perovskites revealed through layer-by-layer investigation

*Artem Musiienko[1] (1. Helmholtz-Zentrum Berlin für Materialien und Energie (Germany))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Tu2b-O51-02]

Understanding Energy Level Alignment at Hole Collecting Monolayer/Perovskite Interface Based on Interfacial Electronic Structure of Organic-Inorganic Semiconductor

*Aruto Akatsuka[1], Minh Anh Truong[2], Atsushi Wakamiya[2], Gaurav Kapil[3], Shuzi Hayase[3], Hiroyuki Yoshida[1,4] (1. Graduate School of Engineering, Chiba University (Japan), 2. Institute for Chemical Research, Kyoto University (Japan), 3. i-PERC, The University of Electro-Communications (Japan), 4. MCRC, Chiba University (Japan))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Tu2b-O51-03]

Outdoor exposure study of Perovskite solar cell modules by MPPT and I-V measurements

*Yoshihiro Hishikawa[1], Kyo Matsuoka[1], Koki Azuma[1], Abdurashid Mavlonov[1], Tomohiko Hara[1], Takayuki Negami[1], Yu Kawano[1], Akinobu Hayakawa[2], Takashi Minemoto[1] (1. Ritsumeikan University (Japan), 2. Sekisui Chemical Co., Ltd. (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Tu2b-O51-04]

Modulating Defects in Wide Bandgap Tin Perovskite Solar Cells through Molecular Passivation

*Dhruba B. Khadka[1], Yasuhiro Shirai[1], Masatoshi Yanagida[1], Kenjiro Miyano[1] (1. National Institute for Materials Science (Japan))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Tu2b-O51-05]

PACT: PV Accelerator for Commercializing Technologies

*Joshua S Stein[1], Laura Schelhas[2], Bruce King[1], Timothy Silverman[2], Angelique Montgomery[1], Micheal Deceglie[2], Michael Owen-Bellini[2], Sona Ulicna[2], Nick Irvin[2], Jack Schall[2] (1. Sandia National Laboratories (United States of America), 2. National Renewable Energy Laboratory (United States of America))

| Joint Session 1-1 & 2-2

Tue. Nov 12, 2024 11:00 AM - 12:30 PM JST | Tue. Nov 12, 2024 2:00 AM - 3:30 AM UTC
301+302(3F)

[Tu2c-Oj1122] Joint Session 1-1 & 2-2: Long-term use and recycling of PV modules

Session Chair(s):Takeshi Tayagaki(AIST), Yansong Shen(UNSW)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Tu2c-Oj1122-01 (Invited)]

Solar farm inspection via large-scale daylight photoluminescence imaging

Thorsten Trupke[1], *Oliver Kunz[1], Juergen W Weber[1] (1. University of New South Wales (Australia))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Tu2c-Oj1122-02]

New Camera Model for Absolute Quantum Efficiency Data from Electroluminescent Measurements on Photovoltaic Modules

*Jürgen H. Werner[1], Georgette Udo[2], Liviu Stoicescu[3] (1. University of Stuttgart (Germany), 2. Research Center Jülich (Germany), 3. Solarzentrum Stuttgart (Germany))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Tu2c-Oj1122-03]

Evaluation of Thermoelectric Performance of Mg_2Si Synthesized Using Silicon Extracted from Waste PV Modules.

*Katsumichi Hanzawa[1], Shinya Kato[2], Michihiro Kusumoto[1], Kengo Yamanaka[2], Taisuke Doi[3], Yasuyoshi Kurokawa[1,4], Noritaka Usami[1,4,5], Takashi Itoh[1] (1. Nagoya University (Japan), 2. Nagoya Institute of Technology (Japan), 3. NPC incorporated (Japan), 4. Institutes of Innovation for Future Society (Japan), 5. Institutes of Materials and Systems for Sustainability (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Tu2c-Oj1122-04]

Study on estimation method of remaining service life of used photovoltaic modules

*Kazumi Takano[1], Kenji Arimatsu[2] (1. ITES (Japan), 2. Tohoku Electric Power (Japan))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Tu2c-Oj1122-05]

Experimental study of effectively separating and extracting valuable metal materials from end-of-life PV modules

*Yuting Zhuo[1], Chengsun He[1], Yansong Shen[1] (1. UNSW (Australia))

Sub area 5-2: Emerging Materials and New Concepts | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-2: Emerging Materials and New Concepts

Tue. Nov 12, 2024 11:00 AM - 12:30 PM JST | Tue. Nov 12, 2024 2:00 AM - 3:30 AM UTC 401(4F)

[Tu2d-O52] Sub area 5-2: Emerging Materials and Novel Technologies

Session Chair(s): Wanli Ma (Soochow Univsersity), Xintong Zhang (Northeast Normal University)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Tu2d-O52-01 (Invited)]

Synthesis and Photophysical Properties of Quantum Dots as well as Application to Solar Cells

*Qing Shen[1] (1. The University of Electro-Communications (Japan))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Tu2d-O52-02]

Beyond 20% Efficiency Colored PV realized by incorporation of perovskite quantum dots/ ethylene vinyl acetate (EVA) composite

*Minya Zhou[1], Yuanxun Liao[1], Shujuan Huang[2], Robert Patterson[1], Martin A Green[1], Jessica Yajie Jiang[1] (1. UNSW Sydney (Australia), 2. Macquarie University (Australia))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Tu2d-O52-03]

Thermal stability, structural transition, and photocatalytic properties of π-SnS tetrahedral particles

*Xiangxin Du[1], Isshin Sumiyoshi[1], Yoshitaro Nose[1] (1. Kyoto University (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Tu2d-O52-04]

Wide bandgap kesterite for indoor photovoltaic application with conversion efficiency above 13% under 2700K illumination

Yuancai Gong[1], Alex Jimenez-Arguijo[1], Sergio Giraldo[1], Zacharie Jehl[1], *Edgardo Saucedo[1] (1. Universitat Politècnica de Catalunya (UPC) (Spain))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Tu2d-O52-05]

Characterization of Particle Assisted Solar Concentrators (PASC) with simple structure

*Keita Fujimoto[1], Shinsuke Miyajima[1] (1. Tokyo Institute of Technology (Japan))

Sub area CC-3: Solar to X; Sciences, Materials and Devices | Cross Cutting Areas：Sub area CC-3: Solar to X; Sciences, Materials and Devices

Tue. Nov 12, 2024 11:00 AM - 12:30 PM JST | Tue. Nov 12, 2024 2:00 AM - 3:30 AM UTC 402(4F)

[Tu2e-Oc3] Sub area CC-3: Solar to X (2); Sciences, Materials and Devices

Session Chair(s):Katsushi Fujii(RIKEN), Tatsuoki Kono(The Univ. of Tokyo)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Tu2e-Oc3-01 (Invited)]

Local environments on Cu electrode surface for selective CO_2 electrolysis

*Miho Yamauchi[1, 2] (1. Kyushu University (Japan), 2. Tohoku University (Japan))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Tu2e-Oc3-02]

Natural Sunlight-Driven CO_2 Hydrogenation into Methanol at Ambient Pressure

linjia Han[1], Xianhua Bai[1], *Yanhong Luo[1], Qingbo Meng[1] (1. Institute of Physics, Chinese Academy of Sciences (China))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Tu2e-Oc3-03]

Photothermal CO_2 hydrogenation to multi carbon product under ambient pressure

*Xianhua Bai[1], Linjia Han[1], Yanhong Luo[1], Qingbo Meng[1] (1. Institute of Physics, Chinese Academy of Sciences, China (China))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Tu2e-Oc3-04]

Understanding the CO_2 reduction reactor anolyte flooding problem in polymer electrolyte-(PEM) type reactor through the water transport properties of ion exchange membranes

*Takeharu Murakami[1], Kei Morishita[1], Kazuki Koike[1,2], Kentaro Inoue[1,2], Takeshi Matsumoto[1], Takayo Ogawa[1], Katsushi Fujii[1], Satoshi Wada[1] (1. RIKEN (Japan), 2. Meiji University (Japan))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Tu2e-Oc3-05]

Dynamic process simulation for green ammonia synthesis applying solar energy

*Yasuyuki Hada[1], Ryosuke Atsumi[1], Keigo Matsuda[2], Hideaki Araki[1] (1. National Institute of Technology, Nagaoka College (Japan), 2. Nagoya University (Japan))

Sub area 1-2: Grid Integration and Energy Management | Area1: PV in Sustainable Energy System：Sub area 1-2: Grid Integration and Energy Management

Tue. Nov 12, 2024 11:00 AM - 12:30 PM JST | Tue. Nov 12, 2024 2:00 AM - 3:30 AM UTC 407(4F)

[Tu2f-O12] Sub area 1-2: Grid Integration and Energy Management

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Tu2f-O12-01 (Invited)]

Grid Forming Inverter: Getting Ready for Inverter Dominated Power System

*Aminul Huque[1]、Wenzong Wang[1]、Deepak Ramasubramanian[1] (1. Electric Power Research Institute (EPRI) (United States of America))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Tu2f-O12-02]

Fair and efficient PV curtailment method in distribution networks and its experiment.

*Francis Maina Itote[1], Ryuto Shigenobu[1], Akiko Takahashi[1], Masakazu Ito[1], Ghjuvan Antone Faggianelli[2] (1. University of Fukui (Japan), 2. University of Corsica (France))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Tu2f-O12-03]

Reduction of Power Flow Congestion by Grid-scale Storage Battery in Bulk Power System with a Large PV Penetration

*Daiki Kato[1], Yusuke Mori[1], Shinji Wakao[1], Tomohide Yamazaki[2], Ichiro Toyoshima[2], Naoya Inuzuka[2] (1. Waseda University (Japan), 2. Toshiba Energy Systems & Solutions Corporation (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Tu2f-O12-04]

Effect of Output Estimation Errors of Vertical Bifacial Photovoltaic Systems for Required Reserve Margin and Unit Commitment

*Keito Nishida[1], Ryuto Shigenobu[1], Akiko Takahashi[1], Masakazu Ito[1], Kyungsoo Lee[2] (1. University of Fukui (Japan), 2. Tech University of Korea (Korea))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Tu2f-O12-05]

Evaluating the Extensive Economic Impact on Unit Commitment Due to Prediction Errors in Snow-Covered PV Output

*Takuto Komuro[1], Nobuyuki Yamaguchi[1], Yusuke Manabe[1], Hideaki Ohtake[2] (1. Tokyo University of Science (Japan), 2. National Institute of Advanced Industrial and Science Technology (Japan))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Tue. Nov 12, 2024 2:00 PM - 3:30 PM JST | Tue. Nov 12, 2024 5:00 AM - 6:30 AM UTC Convention Hall A(1F)

[Tu3a-O51] Sub area 5-1: Process innovation for perovskite solar cells 1

Session Chair(s): Kazuteru Nonomura (U Tokyo), Atsushi Wakamiya (Kyoto U)

2:00 PM - 2:30 PM JST | 5:00 AM - 5:30 AM UTC

[Tu3a-O51-01 (Invited)]

Perovskite Solar Cells: Discovery and Research Directions

*Nam-Gyu Park[1] (1. Sungkyunkwan University (Korea))

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[Tu3a-O51-02]

Function of SAM on performance of inverted perovskite solar cells

*Takayuki Negami[1], Hiroki Mori[1], Sachin Apparao Pawar[1], Yu Kawano[1], Takashi Minemoto[1] (1. Ritsumeikan University (Japan))

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[Tu3a-O51-03]

The conversion of MACl-treated sputtered PbI_2 to perovskite films by close spaced sublimation

*Youngmin Kim[1], Wonkyu Lee[2], Jae-Keun Hwang[2], Solhee Lee[2], Dowon Pyun[2], Ji-Seong Hwang[2], Jiyeon Nam[2], Seok-Hyun Jeong[2], Sujin Cho[2], Kyunghwan Kim[2], Sangwon Lee[1], Youngho Choe[3], Donghwan Kim[2], Yoonmook Kang[1], Hae-Seok Lee[1] (1. Energy Environment Policy and Technology, Graduate School of Energy and Environment (KU-KIST Green School), Korea University (Korea), 2. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 3. Institute of Energy Technology, Korea University, Republic of Korea (Korea))

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[Tu3a-O51-04]

Assessing the Influence of Illumination on Ion Conductivity in Perovskite Solar Cells

Andreas Schiller[1], Sandra Jenatsch[1], Nasim Kabir[2], Firouzeh Ebadi[2], Miguel Angel Torre Cachafeiro[2], Mostafa Othman[3], Michael Christian Wolff[3], Aïcha Hessler-Wyser[3], Wolfang Tress[2], *Urs Aeberhard[1], Daniele Braga[1], Beat Ruhstaller[1,2] (1. FLUXiM AG (Switzerland), 2. Institute of Computational Physics, ZHAW (Switzerland), 3. Photovoltaics and Thin-Film Electronics Laboratory (PV-Lab), EPFL (Switzerland))

3:15 PM - 3:30 PM JST | 6:15 AM - 6:30 AM UTC

[Tu3a-O51-05]

Fully vacuum processed highly efficient and stable perovskite solar cells for economic viability

*BARKHA TYAGI[1], RAHUL NAMBIR[1], HEON JIN[1], BENJAMIN PUTLAND[1], HENRY SNAITH[1] (1. UNIVERSITY OF OXFORD (UK))

Sub area 4-2: Compound Thin-film Photovoltaics | Area4: Thin-film Photovoltaics and Modules：Sub area 4-2: Compound Thin-film Photovoltaics

Tue. Nov 12, 2024 2:00 PM - 3:30 PM JST | Tue. Nov 12, 2024 5:00 AM - 6:30 AM UTC Convention Hall B(3F)

[Tu3b-O42] Sub area 4-2: Kesterite and emerging materials for thin-film solar cells

Session Chair(s):Daniel Abou-Ras(HZB), Takahito Nishimura(Tokyo Tech.)

2:00 PM - 2:30 PM JST | 5:00 AM - 5:30 AM UTC

[Tu3b-O42-01 (Invited)]

Emerging inorganic chalcogenide for solar harvesting devices

*Lydia Helena Wong[1] (1. Nanyang Technological University (Singapore))

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[Tu3b-O42-02]

Beyond 11% certified efficiency for Cd-free high bandgap Cu_2ZnSnS_4 solar cells

*Ao Wang[1,2], Kaiwen Sun[1,2], Jialiang Huang[1,2], Martin A Green[1,2], Xiaojing Hao[1,2] (1. Australian Centre for Advanced Photovoltaics (Australia), 2. University of New South Wales (Australia))

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[Tu3b-O42-03]

Achieving High Efficiency Kesterite Solar Cells Through a Dual Treatment Approach

JunHo Kim[1,4], *Namuundari Otgontamir[1], Temujin Enkhbat[1], Enkhjargal Enkhbayar[1], Soomin Song[2], Seong Yeon Kim[3], Tae Ei Hong[1] (1. Department of Physics, Incheon National University (Korea), 2. Photovoltaic Laboratory, Korea Institute of Energy Research (Korea), 3. Research Center for Thin Film Solar Cells, Daegu Gyeongbuk Institute of Science and Technology (Korea), 4. Global Energy Research Center for Carbon Neutrality, Incheon National University (Korea))

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[Tu3b-O42-04]

The Pathway to >15% Efficiency Emerging Kesterite Solar Cells

*Qingbo Meng[1] (1. Institute of Physics, Chinese Academy of Sciences (China))

3:15 PM - 3:30 PM JST | 6:15 AM - 6:30 AM UTC

[Tu3b-O42-05]

Inverted superstrate antimony selenide solar cells

*Chen Qian[1], Kaiwen Sun[1], Martin Green[1], Xiaojing Hao[1] (1. University of New South Wales (Australia))

Sub area 3-1: Materials, Processes, Fundamentals | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-1: Materials, Processes, Fundamentals

Tue. Nov 12, 2024 2:00 PM - 3:30 PM JST | Tue. Nov 12, 2024 5:00 AM - 6:30 AM UTC 301+302(3F)

[Tu3c-O31] Sub area 3-1: Degradation

Session Chair(s):Rabin Basnet(ANU), Shinya Kato(Nitech)

2:00 PM - 2:30 PM JST | 5:00 AM - 5:30 AM UTC

[Tu3c-O31-01 (Invited)]

From the Lab to the Field: Decoding Degradation at Cell, Module, and Field Level for SHJ and TOPCon

*Bram Hoex[1], Chandany Sen[1], Muhammad Umair Khan[1], Xinyuan Wu[1], Xutao Wang[1], Haoran Wang[1], Jiexi Fu[1], Zeinab Haydous[1], Shukla Poddar[1], Moonyong Kim[1], Jim Joseph John[1], Phillip Hamer[1] (1. UNSW Sydney (Australia))

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[Tu3c-O31-02]

The stability mechanism of SHJ solar cells from the perspective of microstructural changes

*Honghua Zhang[1,2], Yinuo Zhou[1,2], Haodong Chen[1,2], Junlin Du[1], Fanying Meng[1,2], Zhengxin Liu[1,2], Wenzhu Liu[1,2], Liping Zhang[1,2] (1. Shanghai Institute of Microsystem and Information Technology, China (China), 2. University of Chinese Academy of Sciences (China))

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[Tu3c-O31-03]

Insights into mechanism of UV-induced degradation in silicon heterojunction solar cells

*Lei Yang[1], Zechen Hu[1], Qiyuan He[1], Zunke Liu[3], Yuheng Zeng[3], Lifei Yang[4], Xuegong Yu[1,2], Deren Yang[1,2] (1. State Key Lab of Silicon and Advanced Semiconductor Materials and School of Materials Science & Engineering, Zhejiang University (China), 2. Institute of Information and Functional Materials, ZJU-Hangzhou Global Scientific and Technological Innovation Center (China), 3. Ningbo Institute of Materials Technology and Engineering, Chinese Academy of Sciences (China), 4. SuZhou GH New Energy Tech. Co., Ltd. (China))

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[Tu3c-O31-04]

Improvement of Chlorinated Passivation Layers for Silicon Solar Cells under Ultraviolet (UV) Radiation

*Mohamed M. Shehata[1], Daniel H. Macdonald[1], Lachlan E. Black[1] (1. School of Engineering, The Australian National University, Canberra, ACT 2600, Australia. *mohamed.ismael@anu.edu.au (Australia))

3:15 PM - 3:30 PM JST | 6:15 AM - 6:30 AM UTC

[Tu3c-O31-05]

Degradation and recovery mechanisms in passivating contacts for crystalline silicon solar cells

*Kaining Ding[1], Alexander Eberst[1], Binbin Xu[1], Karsten Bittkau[1], Andreas Lambertz[1], Uwe Rau[1] (1. Forschungszentrum Jülich GmbH (Germany))

Sub area 2-1: Integrated PV and Advanced Applications of Photovoltaics | Area2: System Engineering and Field Performance：Sub area 2-1: Integrated PV and Advanced Applications of Photovoltaics

Tue. Nov 12, 2024 2:00 PM - 3:30 PM JST | Tue. Nov 12, 2024 5:00 AM - 6:30 AM UTC 401(4F)

[Tu3d-O21] Sub area 2-1: Integration Technologies for New PV Systems

Session Chair(s): Kensuke Nishioka(Miyazaki Univ.), N. J. Ekins-Daukes(UNSW)

2:00 PM - 2:30 PM JST | 5:00 AM - 5:30 AM UTC

[Tu3d-O21-01 (Invited)]

Development of Lightweight Solar Array Panel for Japan's Lunar Lander SLIM

*Hiroyuki Toyota[1], Shusaku Kanaya[1], Yu Miyazawa[1], Akio Kukita[1], Tetsuya Nakamura[1], Taishi Sumita[1], Seisuke Fukuda[1], Shujiro Sawai[1], Shinichiro Sakai[1], Hiroshi Yamaguchi[2], Hiroyuki Juso[2], Hidetoshi Washio[2], Tatsuya Takamoto[2] (1. JAXA (Japan), 2. Sharp Energy Solutions Corporation (Japan))

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[Tu3d-O21-02]

On-orbit Operation of Solar Panels for JAXA's Lunar Lander SLIM

*Shusaku Kanaya[1], Yu Miyazawa[1], Hiroyuki Toyota[1], Tetsuya Nakamura[1], Taishi Sumita[1], Shujiro Sawai[1], Seisuke Fukuda[1], Shin-ichiro Sakai[1] (1. JAXA (Japan))

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[Tu3d-O21-03]

Characterization of III-V multi-junction solar cells under vacuum and low temperature conditions for design of space concentrator photovoltaic modules

*Daisuke Sato[1], Kyosuke Shimada[1], Shuto Tsuchida[1], Teppei Okumura[2], Tetsuya Nakamura[2], Yoshiyuki Murakami[2], Noboru Yamada[1] (1. Nagaoka University of Technology (Japan), 2. Japan Aerospace Exploration Agency (Japan))

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[Tu3d-O21-04]

Towards integration of power electronics into crystalline silicon solar cells

David A. van Nijen[1], Miro Zeman[1], Olindo Isabella[1], *Patrizio Manganiello[1] (1. Delft University of Technology (Netherlands))

3:15 PM - 3:30 PM JST | 6:15 AM - 6:30 AM UTC

[Tu3d-O21-05]

PV for HAPS (High Altitude Platform): Tensor-Matrix-based modeling and measurement validation

*Kenji Araki Araki[1], Kohei Okada[2], Naoki Mukai[1], Shota Matsushita[1], Seiichi Kiyama[2], Yasuyuki Ota[1], Koji Nishiyama[2], Kensuke Nishioka[1] (1. University of Miyazaki (Japan), 2. Softbank (Japan))

Sub area 1-3: Green Energy Carriers and Storage | Area1: PV in Sustainable Energy System：Sub area 1-3: Green Energy Carriers and Storage

Tue. Nov 12, 2024 2:00 PM - 3:30 PM JST | Tue. Nov 12, 2024 5:00 AM - 6:30 AM UTC 402(4F)

[Tu3e-O13] Sub area 1-3: Green Energy Carriers and Storage

Session Chair(s):Koichi Sugibuchi(RTS), Cui Jindan(Tokyo University of Science)

2:00 PM - 2:30 PM JST | 5:00 AM - 5:30 AM UTC

[Tu3e-O13-01 (Invited)]

Demonstration Operation of Large-Scale Hydrogen Energy System Using Renewable Energy

*Junichi Sato[1], Shingo Tamaru[1], Junsuke Baba[1], Naoki Kotaki[1] (1. Toshiba Energy Systems & Sulutions Corporation (Japan))

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[Tu3e-O13-02]

Global perspectives on seasonal photovoltaic energy yield adjustment with integrated hydrogen storage systems

*Mao Iida[1], Yosuke Kinden[1], Tomoya Kobayashi[1], Hiroyuki Fujiwara[1] (1. Gifu University (Japan))

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[Tu3e-O13-03]

Comparison of Hydrogen Supply Cost for Electrolyzers
Participating in Reserve Market between Japan and United Kingdom

*Yuta Nakamura[1], Mutsumi Aoki[1] (1. Nagoya Institute of Technology (Japan))

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[Tu3e-O13-04]

Pumped hydro energy storage for solar power in India

Srushti Jagtap[2,1], Juzer Vasi[1], *Anil Kottantharayil[1] (1. Indian Institute of Technology Bombay (India), 2. Pillai College of Engineering (India))

3:15 PM - 3:30 PM JST | 6:15 AM - 6:30 AM UTC

[Tu3e-O13-05]

A chemical maximum-power-point tracking system for stabilized solar-fuel production

*Yasuo Matsubara[1], Hinako Kawakami[2], Yasuhito Kajita[2], Yasushi Satoh[2], Yutaka Amao[1] (1. Research Center for Artificial Photosynthesis, Osaka Metropolitan University (Japan), 2. Advanced Technology Development, Iida Group Holdings Co., Ltd. (Japan))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Tue. Nov 12, 2024 4:00 PM - 5:30 PM JST | Tue. Nov 12, 2024 7:00 AM - 8:30 AM UTC Convention Hall A(1F)

[Tu4a-O51] Sub area 5-1:Process innovation for perovskite solar cells 2

Session Chair(s): Pongsakorn Kanjanaboos (Mahidol University), Peter Chen (National Cheng Kung University (NCKU))

4:00 PM - 4:30 PM JST | 7:00 AM - 7:30 AM UTC

[Tu4a-O51-01 (Invited)]

[Tentative] Efficient perovskite solar cells via charge carrier transport modulation and defects passivation

*Jing-Bi You[1] (1. Chinese Academy of Science (China))

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[Tu4a-O51-02]

Research on Efficient Perovskite Solar Cells based on Novel Charge Transport Layers

*Xin Li[1], Junyou Yang[1] (1. Huazhong University of Science and Technology (China))

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[Tu4a-O51-03]

Chemical vapour deposition technology for perovskite fabrication

*Yong Li[1], Faiazul Haque[1], Timothy Jones[1], Benjamin Duck[1], Gregory Wilson[1], Noel Duffy[1] (1. CSIRO Energy (Australia))

5:00 PM - 5:15 PM JST | 8:00 AM - 8:15 AM UTC

[Tu4a-O51-04]

P3CT-X hole-transport-layer-based inverted perovskite solar cells

*Anjali Chandel[1], Sheng-Hsuing Chang[1, 2] (1. National Taiwan Ocean University (Taiwan) 2. Chung Yuan Christian University (Taiwan))

5:15 PM - 5:30 PM JST | 8:15 AM - 8:30 AM UTC

[Tu4a-O51-05]

Implications of ion conduction for real-world energy yield of perovskite solar cells

*Daniel Walter[1], Viqar Ahmad[1], Li-chun Chang[1], Heping Shen[1], Kylie Catchpole[1], Klaus Weber[1] (1. Australian National University (Australia))

Efficient perovskite solar cells via charge carrier transport modulation and defects passivation

Jingbi You*

Institute of Semiconductors, Chinese Academy of Sciences, Beijing, China
*e-mail address: jyou@semi.ac.cn

Halide perovskite materials own excellent semiconductor properties, which showed great potential in photovoltaic. In this talk, I will talk about our recent work in perovskite solar cells (PSCs). 1). According to introducing a universal passivation strategy in PSCs, to three world record efficiencies (23.3%, 23.7% and 26.0%) has been achieved ; 2) By introducing NiO/SAM bilayer hole transport layer in inverted PSCs, the efficiency of inverted PSCs has been pushed to over than 27%; 3) Combining low temperature growth method of perovskite films and minimodule device architecture design, close to 23% efficiency of minimodule has been fabricated.

Sub area 4-3: III-V High-efficiency Devices | Area4: Thin-film Photovoltaics and Modules：Sub area 4-3: III-V High-efficiency Devices

Tue. Nov 12, 2024 4:00 PM - 5:30 PM JST | Tue. Nov 12, 2024 7:00 AM - 8:30 AM UTC Convention Hall B(3F)

[Tu4b-O43] Sub area 4-3: III-V High-efficiency Multijunction Devices

Session Chair(s):Ryuji Oshima(AIST), Robin Lang (Fh-ISE)

4:00 PM - 4:30 PM JST | 7:00 AM - 7:30 AM UTC

[Tu4b-O43-01 (Invited)]

Lowering the cost of III-V Photovoltaic

*John Simon[1] (1. National Renewable Energy Laboratory (United States of America))

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[Tu4b-O43-02]

Flexible GaInP/GaAs/InGaAs superlattice triple-junction solar cells reach over 34% (AM0) conversion efficiency

*Zhitao Chen[1], Junhua Long[1], Qiangjian Sun[1], Shulong Lu[1] (1. Suzhou Institute of Nano-Tech and Nano-Bionics (China))

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[Tu4b-O43-03]

Development of wafer-bonded III-V concentrator solar cells with six junctions

*Robin Lang[1], Malte Klitzke[1], Patrick Schygulla[1], Gerald Siefer[1], David Lackner[1], Frank Dimroth[1], Oliver Höhn[1,2] (1. Fraunhofer ISE (Germany), 2. University of Freiburg (Germany))

5:00 PM - 5:15 PM JST | 8:00 AM - 8:15 AM UTC

[Tu4b-O43-04]

Efficiency enhancement of InGaP/GaAs/$In_xGa_{1-x}As$//$In_yGa_{1-y}As$ four-junction solar cells by improving current matching

*Takashi Shimasaki[1], Kentaroh Watanabe[2], Hassanet Sodabanlu[2], Yoshiaki Nakano[1], Masakazu Sugiyama[1,2] (1. The University of Tokyo (Japan), 2. Research Center for Advanced Science and Technology, the University of Tokyo (Japan))

5:15 PM - 5:30 PM JST | 8:15 AM - 8:30 AM UTC

[Tu4b-O43-05]

III-V p-on-n multi-junction solar cells via surface activated bonding technique

*Hassanet Sodabanlu[1], Depu Ma[2], Kentaroh Watanabe[1], Yoshiaki Nakano[2], Masakazu Sugiyama[1,2] (1. Research Center for Advanced Science and Technology, the University of Tokyo (Japan), 2. School of Engineering, the University of Tokyo (Japan))

Sub area 3-2: Cells and Modules | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-2: Cells and Modules

Tue. Nov 12, 2024 4:00 PM - 5:30 PM JST | Tue. Nov 12, 2024 7:00 AM - 8:30 AM UTC 301+302(3F)

[Tu4c-O32] Sub area 3-2: Silicon heterojunction solar cells

Session Chair(s):Bram Hoex(UNSW), Tomihisa Tachibana(AIST)

4:00 PM - 4:30 PM JST | 7:00 AM - 7:30 AM UTC

[Tu4c-O32-01 (Invited)]

Industrial-Scale Deposition of Nanocrystalline Silicon Oxide for 26.4%-Efficient Silicon Heterojunction Solar Cells with Copper Electrodes

Kun Gao[1], Cao Yu[2,3], Alison Lennon[4], Jian Zhou[3], *Xinbo Yang[1] (1. College of Energy, Soochow University (China), 2. Institute of Functional Nano & Soft Materials, Soochow University (China), 3. Suzhou Maxwell Technologies Co., Ltd. (China), 4. School of Photovoltaic and Renewable Energy Engineering, The University of New South Wales (Australia))

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[Tu4c-O32-02]

Fill Factor Loss Analysis of Silicon Heterojunction Solar Cells: Impact of Contact Resistivity and Recombination Losses

Shrestha Bhattacharya[1], Ashutosh Pandey[1], Shahnawaz Alam[1], Silajit Manna[1], Sourav Sadhukhan[1], Son Pal Singh[1], *Vamsi Krishna Komarala[1] (1. Indian Institute of Technology Delhi (India))

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[Tu4c-O32-03]

Efficient hole carrier transportation and collection via interface modulation between c-Si and p type nano-crystalline silicon emitter

*Liping Zhang[1], Yinuo Zhou[1], Honghua Zhang[1], Junlin Du[1], Guangyuan Wang[1], Fanying Meng[1], Wenzhu Liu[1], Zhengxin Liu[1] (1. Shanghai Institute of Microsystem and Information Technology (China))

5:00 PM - 5:15 PM JST | 8:00 AM - 8:15 AM UTC

[Tu4c-O32-04]

UV-induced Degradation in Silicon Heterojunction Solar Cells: Mechanism and Mitigation Solution by Down-Shifting Encapsulation

*Binbin Xu[1,2], Alexander Eberst[1,2], Kai Zhang[1,2], Yanxin Liu[1,2], Sara Alkhereibi[1,3,4], Karsten Bittkau[1], Andreas Lambertz[1], Uwe Rau[1,2], Kaining Ding[1] (1. IEK-5 Photovoltaics, Forschungszentrum Jülich GmbH (Germany), 2. Jülich-Aachen Research Alliance (JARA-Energy) and Faculty of Electrical Engineering and Information Technology, RWTH Aachen University (Germany), 3. Ernst Ruska-Centre for Microscopy and Spectroscopy with Electrons, Forschungszentrum Jülich GmbH (Germany), 4. Faculty of Mathematics, Computer Science and Natural Sciences, RWTH Aachen University (Germany))

5:15 PM - 5:30 PM JST | 8:15 AM - 8:30 AM UTC

[Tu4c-O32-05]

Evaluating SHJ Cell Stability under Accelerated Illuminated Annealing and Field Conditions

*Maysa Sarsour[1], Chukwuka Madumelu[1], Alison Ciesla[1], Martin Green[1], NJ Ekins-Daukes[1], Fiacre Rougieux[1], Jessica Yajie Jiang[1] (1. School of Photovoltaic and Renewable Energy, UNSW (Australia))

Sub area CC-2: Artificial Intelligence in PV Development | Cross Cutting Areas：Sub area CC-2: Artificial Intelligence in PV Development

Tue. Nov 12, 2024 4:00 PM - 5:30 PM JST | Tue. Nov 12, 2024 7:00 AM - 8:30 AM UTC 401(4F)

[Tu4d-Oc2] Sub area CC-2: AI for Silicon and Perovskite Cells

Session Chair(s):Takuto Kojima(AIST), Hiroaki Kudo(Nagoya Univ.)

4:00 PM - 4:30 PM JST | 7:00 AM - 7:30 AM UTC

[Tu4d-Oc2-01 (Invited)]

Recent developments in quality inspection for solar cell production using deep learning techniques

*Matthias Demant[1], Philipp Kunze[1], Alexandra Wörnhör[1], Leslie Kurumundayil[1], Wilkin Wöhler[1], Daniel Burkhardt[1], Julian Behrendt[1], Andreas Fell[1], Jonas Haunschild[1], Johannes Greulich[1], Stefan Rein[1] (1. Fraunhofer ISE (Germany))

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[Tu4d-Oc2-02]

A material and process acceleration platform for slot-die coated perovskite photovoltaics

*Simon Ternes[1], Maurizio Stefanelli[1], Aldo Di Carlo[1,2] (1. CHOSE, Centre for Hybrid and Organic Solar Energy, University of Rome “Tor Vergata”,Department of Electronic Engineering, Via del Politecnico 1, 00133 Rome, Italy (Italy), 2. ISM-CNR, Istituto di Struttura della Materia, Consiglio Nazionale delle Ricerche, via del Fosso del Cavaliere 100, 00133 Rome, Italy (Italy))

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[Tu4d-Oc2-03]

Machine Learning-Driven Prediction of Ambient-Processed Perovskite Solar Cell Performance Using Dew Point

*Seungtae Lee[1], Dowon Pyun[1], Solhee Lee[1], Jae Keun Hwang[1], Wonkyu Lee[1], Jiyeon Nam[1], Ji-Seong Hwang[1], Seok-Hyun Jeong[1], Sujin Cho[1], Kyunghwan Kim[1], Youngmin Kim[2], Youngho Choe[3], Yoonmook Kang[2], Hae-Seok Lee[2], Donghwan Kim[1] (1. Department of Materials Science and Engineering, Korea University (Korea), 2. Graduate School of Energy and Environment (KU-KIST Green School), Korea University (Korea), 3. Institute of Energy Technology, Korea University (Korea))

5:00 PM - 5:15 PM JST | 8:00 AM - 8:15 AM UTC

[Tu4d-Oc2-04]

Prediction of lead-free perovskites with enhanced accuracy for photovoltaic applications

*Laxmi Nakka[1], Chandu DS[2] (1. Nanyang Technological University (Singapore), 2. VIT-AP University (India))

5:15 PM - 5:30 PM JST | 8:15 AM - 8:30 AM UTC

[Tu4d-Oc2-05]

Machine learning for finding Pb replacement material for perovskite solar cells

*Galhenage Asha Sewvandi[1], Pradeep KW Abeygunawardhana[2], H.A.H.M. Wijerathne[1], M.G.M.M. Karunarathna[1] (1. University of Moratuwa (Sri Lanka), 2. Sri Lanka Institute of Information Technology (Sri Lanka))

Sub area 4-1: Organic and Inorganic Photovoltaics | Area4: Thin-film Photovoltaics and Modules：Sub area 4-1: Organic and Inorganic Photovoltaics

Tue. Nov 12, 2024 4:00 PM - 5:30 PM JST | Tue. Nov 12, 2024 7:00 AM - 8:30 AM UTC 402(4F)

[Tu4e-O41] Sub area 4-1: Organic and Inorganic Photovoltaics

Session Chair(s):Yasuyoshi Kurokawa(Nagoya Univ.)

4:00 PM - 4:30 PM JST | 7:00 AM - 7:30 AM UTC

[Tu4e-O41-01 (Invited)]

Sustainability evaluations and design considerations for terawatt scale manufacturing of future silicon based tandem technology

*Li Wang[1], Moonyong Kim[1], Sisi Wang[1], Yuchao Zhang[1], Weifei Lian[2], Catherine Chan[1], Brett Hallam[1] (1. UNSW Sydney (Australia), 2. Zhejiang Winhitech New Energy Co.,Ltd (China))

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[Tu4e-O41-02]

Diagnostics of p-i-n radial junction silicon solar cells at macro-, micro- and nanoscale to determine electrical parameters.

*Marcin Palewicz[1], Tomasz Piasecki[1], Andrzej Sikora[1], Bartosz Pruchnik[1], Krzysztof Gajewski[1], Martin Foldyna[2], Muhammad Waseem Ashraf [2,3], Teodor Gotszalk[1] (1. Department of Nanometrology at the Faculty of Electronics, Photonics and Microsystems, Wrocław University of Science and Technology, Poland (Poland), 2. Laboratoire de Physique des Interfaces et Couches Minces, CNRS, École Polytechnique, IP Paris, France, (France), 3. Nanophotonic Devices, Istituto Italiano di Tecnologia (IIT), Italy (Italy))

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[Tu4e-O41-03]

Crystallization of Cat-CVD amorphous silicon films by FLA on seed crystal layers formed by aluminum induced crystallization

*Baitong Li[1], Tu Huynh Thi Cam[1], Keisuke Ohdaira[1] (1. Japan Advanced Institute of Science and Technology (Japan))

5:00 PM - 5:15 PM JST | 8:00 AM - 8:15 AM UTC

[Tu4e-O41-04]

Demonstration of photoresponsivity in polycrystalline Ge thin film
for bottom cell application in multi-junction solar cells

*Shintaro Maeda[1], Takamitsu Ishiyama[1], Takashi Suemasu[1], Kaoru Toko[1] (1. University of Tsukuba (Japan))

5:15 PM - 5:30 PM JST | 8:15 AM - 8:30 AM UTC

[Tu4e-O41-05]

Progress in performance and reliability research on lightweight and flexible thin-film PV foils

*Arno Hendrikus Marie Smets[1], Govind Padmakumar[1], Federica Saitta[1], Peer Sluijs[1], Paula Perez Rodriguez[1], K.P. Sreejith[1], Reinder Boekhof[1], Luana Mazzarella[1], Tom Savenije[1], Thierry de Vrijer[2], Ravi Vasudevan[2], Mohammed El Makkaoui[2], Edward Hamers[2] (1. Delft University of Technology (Netherlands), 2. HyET Solar NL (Netherlands))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Tue. Nov 12, 2024 5:40 PM - 7:10 PM JST | Tue. Nov 12, 2024 8:40 AM - 10:10 AM UTC Convention Hall B(3F)

[Tu5b-O51] Sub area 5-1: Special session of perovskite solar cells

Session Chair(s): Atsushi Wakamiya (Kyoto Univ.), Takuro Murakami (AIST)

5:40 PM - 5:55 PM JST | 8:40 AM - 8:55 AM UTC

[Tu5b-O51-01]

Toward High Performance Perovskite Solar Cells and Modules

*Hiroshi Segawa[1] (1. The University of Tokyo (Japan))

5:55 PM - 6:10 PM JST | 8:55 AM - 9:10 AM UTC

[Tu5b-O51-02]

Materials Development and Process Optimization for the Commercialization of Perovskite Solar Cells

*Takurou Murakami[1] (1. AIST (Japan))

6:10 PM - 6:25 PM JST | 9:10 AM - 9:25 AM UTC

[Tu5b-O51-03]

Impact of water vapor transmission on flexible perovskite solar cell modules through damp heat test

*Takashi Minemoto[1] (1. Ritsumeikan University (Japan))

6:25 PM - 6:40 PM JST | 9:25 AM - 9:40 AM UTC

[Tu5b-O51-04]

Interfacial molecular engineering for high-voltage performing perovskite solar cells

*Tsutomu Miyasaka[1] (1. Toin University of Yokohama (Japan))

6:40 PM - 6:55 PM JST | 9:40 AM - 9:55 AM UTC

[Tu5b-O51-05]

Efficient and stable perovskite solar cells and modules

*Zonghao Liu[1] (1. Huazhong University of Science and Technology (China))

6:55 PM - 7:10 PM JST | 9:55 AM - 10:10 AM UTC

[Tu5b-O51-06]

Efficient Perovskite Photovoltaics toward Commercialization

*Atsushi Wakamiya[1] (1. Kyoto University (Japan))

| Joint Session 3-2 & CC-1：Joint Session 3-2 & CC-1

Tue. Nov 12, 2024 5:40 PM - 6:55 PM JST | Tue. Nov 12, 2024 8:40 AM - 9:55 AM UTC 301+302(3F)

[Tu5c-Oj32c1] Joint Session 3-2 & CC-1 (perovskite/Si tandem cells)

Session Chair(s):Atsushi Masuda(Niigata Univ.), Ryousuke Ishikawa(Tokyo City Univ.)

5:40 PM - 6:10 PM JST | 8:40 AM - 9:10 AM UTC

[Tu5c-Oj32c1-01 (Invited)]

Challenges for the upscaling of perovskite/silicon tandem technology

*Solenn BERSON[1], Matthieu MANCEAU[1], Olivier DUPRE[1], Polyxeni TSOULKA[1], Adrien DANEL[1], Kristell CARRERIC[1], Kilian ALCOCER[1], Perrine CARROY[1], Helen BRISTOW[1], Sylvain ROUSSEAU[1], Helene LIGNIER[1], Frederic JAY[1], Noella LEMAITRE[1], Malek BENMANSOUR[1] (1. CEA LITEN, INES campus (France))

6:10 PM - 6:40 PM JST | 9:10 AM - 9:40 AM UTC

[Tu5c-Oj32c1-02 (Invited)]

Multi-functional TiO_x Nanolayers for Silicon and Perovskite/Silicon Tandem Solar Cells

*Takuya Matsui[1], Hitoshi Sai[1] (1. AIST (Japan))

6:40 PM - 6:55 PM JST | 9:40 AM - 9:55 AM UTC

[Tu5c-Oj32c1-03]

Titanium Silicide: A Promising Candidate of Recombination Layer for Perovskite/TOPCon Tandem Solar Cells

*Dowon Pyun[1], Dongjin Choi[1], Soohyun Bae[2], Sang-Won Lee[3], Hoyoung Song[1], Seok-Hyun Jeong[1], Solhee Lee[1], Jae-Keun Hwang[1], Sujin Cho[1], Myungji Woo[1], Yerin Lee[1], Kyunghwan Kim[1], Youngmin Kim[4], Youngho Choe[5], Yoonmook Kang[4], Donghwan Kim[1], Hae-Seok Lee[4] (1. Department of Materials Science and Engineering, Korea University (Korea), 2. Photovoltaic Laboratory, Korea Institute of Energy Research (Korea), 3. SUNCAT Center for Interface Science and Catalysis, Stanford University (United States of America), 4. Graduate School of Energy and Enviornment (KU-KIST Green School), Korea University (Korea), 5. Institute of Energy Technology, Korea University (Korea))

Sub area 3-2: Cells and Modules | Plenary

Wed. Nov 13, 2024 9:00 AM - 9:30 AM JST | Wed. Nov 13, 2024 12:00 AM - 12:30 AM UTC
Convention Hall A(1F)

[We1a-L3] Plenary 3

Session Chair(s):Atsushi Masuda(Niigata Univ.), Hae Seok Lee(Korea Univ.)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[We1a-L3-01]

High Efficiency Silicon-based PV Technology in LONGi

*Xixiang Xu[1], Miao Yang[1], Xiaoning Ru[1], Hua Wu[1], Feng Ye[1], Shi Yin[1], Chengjian Hong[1], Fuguo Peng[1], Yongcai He[1], Jiang Liu[1], Bo He[1], Yong Liu[1], Chaowei Xue[1], Yichun Wang[2], Hao Deng[2], Minghao Qu[1], Junxiong Lu[1], Liang Fang[1] (1. LONGi Central R&D Institute, LONGi Green Energy Technology Co., Ltd (China), 2. LONGi Silicon Wafer BU, LONGi Green Energy Technology Co., Ltd (China))

Plenary | Plenary

Wed. Nov 13, 2024 9:30 AM - 10:00 AM JST | Wed. Nov 13, 2024 12:30 AM - 1:00 AM UTC
Convention Hall A(1F)

[We1a-L5] Plenary 5

Session Chair(s): Atsushi Wakamiya (Kyoto Univ.), Qing Shen (The Univ. of Electro-Communications)

9:30 AM - 10:00 AM JST | 12:30 AM - 1:00 AM UTC

[We1a-L5-01]

Towards outdoor operation of perovskite solar cells

*Kai Zhu[1] (1. NREL (United States of America))

Plenary | Plenary

Wed. Nov 13, 2024 10:00 AM - 10:30 AM JST | Wed. Nov 13, 2024 1:00 AM - 1:30 AM UTC
Convention Hall A(1F)

[We1a-Lc1] Plenary CC1

Session Chair(s):Yasuaki Ishikawa(Tokyo City Univ.)

10:00 AM - 10:30 AM JST | 1:00 AM - 1:30 AM UTC

[We1a-Lc1-01]

Interface engineering for stable and efficient perovskite/silicon tandem photovoltaics

*Stefan De Wolff[1] (1. KAUST (Saudi Arabia))

Sub area CC-1: Perovskite Tandems | Cross Cutting Areas：Sub area CC-1: Perovskite Tandems

Wed. Nov 13, 2024 11:00 AM - 12:30 PM JST | Wed. Nov 13, 2024 2:00 AM - 3:30 AM UTC
Convention Hall B(3F)

[We2b-Oc1] Sub area CC-1: Perovskite/Si tandem cells

Session Chair(s):Takuya Matsui(AIST), Itaru Raifuku(Aoyama Gakuin University)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[We2b-Oc1-01 (Invited)]

Narrow Bandgap Mixed Tin–Lead Perovskites for All-Perovskite Tandem Photovoltaics

*Shuaifeng Hu[1], Henry James Snaith[1] (1. University of Oxford (UK))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[We2b-Oc1-02]

Rationalizing Perovskite Crystal Growth on Cz Silicon Wafers for Efficient Tandem Solar Cells

*Qilin Zhou[1,2], Yi Hou[1,2] (1. National University of Singapore (Singapore), 2. Solar Energy Research Institute of Singapore (Singapore))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[We2b-Oc1-03]

Fabrication of bendable perovskite/silicon heterojunction tandem solar cells with spin-coated perovskite films on micro-textured thin silicon substrates

*Kimihiko Saito[1], Kanji Takahashi[1], Hirotaka Shishido[1], Ryousuke Ishikawa[1] (1. Tokyo City University (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[We2b-Oc1-04]

Technoeconomic analysis for manufacturing perovskite/silicon tandem modules

*Jacob Cordell[1], Michael Woodhouse[1], Emily Warren[1] (1. National Renewable Energy Laboratory (United States of America))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[We2b-Oc1-05]

Structural and Optoelectronic Analysis on >34% Efficient Perovskite/Silicon Tandem

*Jiang Liu[1], Yongcai He[2], Lei Ding[1], Hua Zhang[2], Xiaohong Zhang[3], Zhengguo Li[2], Bo He[2], Xixiang Xu[2] (1. College of Energy, Soochow Institute for Energy and Materials Innovations, Soochow University, Suzhou, 215006, China (China), 2. LONGi Central R&D Institute, LONGi Green Energy Technology Co., Ltd., Xi'an, China (China), 3. Institute of Functional Nano & Soft Materials (FUNSOM), Jiangsu Key Laboratory for Carbon-Based Functional Materials & Devices, Soochow University, Suzhou, Jiangsu, 215123, China (China))

Sub area 1-1: Policy, Market, Finance and Deployment | Area1: PV in Sustainable Energy System：Sub area 1-1: Policy, Market, Finance and Deployment

Wed. Nov 13, 2024 11:00 AM - 12:30 PM JST | Wed. Nov 13, 2024 2:00 AM - 3:30 AM UTC 301+302(3F)

[We2c-O11] Sub area 1-1: PV market and industry: Current and future

Session Chair(s):Keiichi Komoto (MHRT), Koji Matsubara (NEDO)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[We2c-O11-01 (Invited)]

[Tentative] JPEA Outlook 2050

*Takeaki Masukawa[1] (1. Japan Photovoltaic Energy Association (Japan))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[We2c-O11-02]

The Rapid Growing Solar Photovoltaic System Capacity in the European Union – How to Optimise Land Use

*Arnulf Jäger-Waldau[1], Georgia Kakoulaki[1], Anatoli Chatzipiangi[1], Sandor Szabo[1] (1. European Commission (Italy))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[We2c-O11-03]

A Snapshot of the Global PV Market and Industry

Gaëtan Masson[1], Arnulf Jäger-Waldau[2], *Izumi KAIZUKA[3], Johan Lindahl[4], Jose Donoso[5], Melodie de l'Epine[6] (1. IEAPVPS TASK1 (Belgium), 2. European Commission Joint Research Centre (JRC) (Italy), 3. RTS Corporation (Japan), 4. Becquerel Institute Sweden AB (Sweden), 5. UNEF (Spain), 6. Bequerel Institute France (France))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[We2c-O11-04]

Towards sustainable penetration of photovoltaics for carbon neutrality by 2050

*Mitsutoshi Okada[1], Yusuke Kumano[1], Shigeru Niki[1], Naoto Takatsu[2], Keiichi Komoto[2], Yuzuru Ueda[3] (1. NEDO Technology Strategy Center (Japan), 2. Mizuho Research & Technologies, Ltd. (Japan), 3. Tokyo University of Science (Japan))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[We2c-O11-05]

Scale of economic opportunities enabled by disruptive PV technologies

*BIlly J Stanbery[1], Michael Woodhouse[2], Jacob J Cordell[2], Jao van de Lagemaat[2] (1. Colorado School of Mines (United States of America), 2. National Renewable Energy Laboratory (United States of America))

Sub area 3-1: Materials, Processes, Fundamentals | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-1: Materials, Processes, Fundamentals

Wed. Nov 13, 2024 11:00 AM - 12:30 PM JST | Wed. Nov 13, 2024 2:00 AM - 3:30 AM UTC 401(4F)

[We2d-O31] Sub area 3-1: Defect engineering

Session Chair(s):Hee-eun Song(KIER), Nobuyuki Matsuki(Kanagawa Univ.)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[We2d-O31-01 (Invited)]

Gettering in silicon TOPCon cells and its impact

*AnYao Liu[1], Zhongshu Yang[1], Daniel Macdonald[1] (1. Australian National University (Australia))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[We2d-O31-02]

Very high bulk lifetimes in industrial Czochralski-grown n-type silicon ingots with melt recharging

*Afsaneh Kashizadeh[1], Rabin Basnet[1], lachlan Black[1], Chang Sun[2], Qian Jin[2], Yichun Wang[2], Daniel MacDonald[1] (1. The Australian National University (Australia), 2. LONGI Green Energy Technology Co (China))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[We2d-O31-03]

Advanced modeling of temperature-dependent phenomena in solar cell manufacturing utilizing the full dynamics of heat-up and cool-down profiles

*Sebastian Roder[1], Jale Schneider[1], Andreas Brand[1], Jan Nekarda[1] (1. Fraunhofer Institute for Solar Energy Systems (ISE) (Germany))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[We2d-O31-04]

Investigating recombination activity of Chromium-Gallium (CrGa) pairs in silicon

*SANJIDA HOSSAIN SABAH[1], Tien T. Le[1], Zhuangyi Zhou[2], Chang Sun[3], Yichun Wang[3], Qian Jin[3], Fiacre Rougieux[2], Daniel Macdonald[1], AnYao Liu[1] (1. The Australian National University, Canberra (Australia), 2. The University of New South Wales,Sydney (Australia), 3. LONGI Green Energy Technology Co., Ltd. (China))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[We2d-O31-05]

Super high-rate sputtering of high-quality hydrogenated amorphous silicon passivation layer

*Shasha Li[1], Shinsuke Miyajima[1] (1. Tokyo Institute of Technology (Japan))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Wed. Nov 13, 2024 11:00 AM - 12:30 PM JST | Wed. Nov 13, 2024 2:00 AM - 3:30 AM UTC 402(4F)

[We2e-O51] Sub area 5-1: New materials for perovskite solar cells

Session Chair(s): Akinori Saeki (Osaka U), Atsushi Wakamiya (Kyoto U)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[We2e-O51-01 (Invited)]

Functional materials and scalable processes for low-cost perovskite solar cells and radiative cooling films

*Pongsakorn Kanjanaboos[1,2] (1. School of Materials Science and Innovation, Faculty of Science, Mahidol University (Thailand), 2. Center for Cooling and Energy-saving Materials, Faculty of Science, Mahidol University (Thailand))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[We2e-O51-02]

Compositional and additive engineering of wide-bandgap perovskite toward improved performance and stability

*Ryosuke Nishikubo Nishikubo[1], Yieon Park[1], Akinori Saeki[1] (1. Osaka Univ. (Japan))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[We2e-O51-03]

New self-assembling organic molecule with superior hole transport -dithieno [3,2b:2’,3’-d] pyrrole functionalized molecule for highly efficient perovskite solar cells

*Daimiota Takhellambam[1], Alessio Dessì[2], Matteo Salvi[2,3], Luigi Angelo Castriotta[1], Massimo Calamante[2], Daniele Franchi[2], Lorenzo Zani[2], Gianna Reginato[2], Alessandro Mordini[2], Aldo Di Carlo[4,1] (1. University of Rome Tor Vergata (Italy), 2. CNR-ICCOM, Florence (Italy), 3. University of Siena (Italy), 4. ISM-CNR, Rome (Italy))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[We2e-O51-04]

Dynamic Co-Evaporation Schemes for Metal Halide Perovskites Absorbers: Analysis of Film Formation Dynamics with *In Situ* X-ray diffraction

*Paul Pistor[1,2], Karl L. Heinze[2], Robert Heidrich[2], Tobias Schulz[2], Roland Scheer[2] (1. CNATS-UPO (Spain), 2. Martin-Luther-Universität Halle-Wittenberg (Germany))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[We2e-O51-05]

Mitigating Non-Radiative Recombination with Perylene Diimide Derivative for Highly Efficient Indoor Perovskite Photovoltaic Devices

*Byung Gi Kim[1], Jummin Lee[1], Dong Hwan Wang[1,2] (1. Department of Intelligent Semiconductor Engineering, Chung-Ang University (Korea), 2. School of Integrative Engineering, Chung-Ang University (Korea))

Sub area 4-3: III-V High-efficiency Devices | Area4: Thin-film Photovoltaics and Modules：Sub area 4-3: III-V High-efficiency Devices

Wed. Nov 13, 2024 11:00 AM - 12:30 PM JST | Wed. Nov 13, 2024 2:00 AM - 3:30 AM UTC 407(4F)

[We2f-O43] Sub area 4-3: III-V High-efficiency Devices and Related Technologies

Session Chair(s): Kentaroh Watanabe (Univ. Tokyo), John Simon (NREL)

11:00 AM - 11:15 AM JST | 2:00 AM - 2:15 AM UTC

[We2f-O43-01]

High reliability flexible encapsulation technology and modules for GaInP/GaAs/InGaAs thin film solar cells

*Xiaoxu Wu[1], Junhua Long[1], Qiangjian Sun[1], Shulong Lu[1] (1. Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences (China))

11:15 AM - 11:30 AM JST | 2:15 AM - 2:30 AM UTC

[We2f-O43-02]

Characterization of spalling-released thin film tandem solar cells

*Naoya Miyashita[1], Yasushi Shoji[2], Takeyoshi Sugaya[2], Tomah Sogabe[1], Koichi Yamaguchi[1], Yoshitaka Okada[3] (1. The University of Electro-Communications (Japan), 2. National Institute of Advanced Industrial Sciencde an Technology (AIST) (Japan), 3. RCAST, The University of Tokyo (Japan))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[We2f-O43-03]

Formation of thick germanium-on-nothing structures via inductively coupled plasma reactive ion etching

*Wenbo Fan[1,2], Ryuji Oshima[2], Yasushi Shoji[2], Takeyoshi Sugaya[2], Shuhei Yagi[1], Hiroyuki Yaguchi[1] (1. Saitama University (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[We2f-O43-04]

Over 30% efficient GaInP indoor light photovoltaic cells fabricated via HVPE for internet-of-things

*Yasushi Shoji[1], Ryuji Oshima[1], Kikuo Makita[1], Akinori Ubukata[2], Shuuichi Koseki[2], Takeyoshi Sugaya[1] (1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan), 2. Taiyo Nippon Sanso Corporation (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[We2f-O43-05]

Fabrication of GaAs solar cells using large-scale, vertical flow type, single-chamber hydride vapor phase epitaxy

*Ryuji Oshima[1], Yasushi Shoji[1], Yudai Shimizu[2], Kikuo Makita[1], Akinori Ubukata[2], Hiroki Tokunaga[2], Takeyoshi Sugaya[1] (1. National Institute of Advanced Industrial Science and Technology (Japan), 2. Taiyo Nippon Sanso Corporation (Japan))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[We2f-O43-06]

Implementation of GaAsGe ternary alloy in a heterojunction solar cell

Pablo Caño[1], *Miguel Ángel Sevillano-Bendezú[2], Enrique Navarro[2], Aitana Cano[1], Iván García[1], Raghavendra Rao Juluri[3], Ana M. Sánchez[3], Alicia Gonzalo Martín[4], Yolanda González[2], José María Ripalda[2] (1. Instituto de Energía Solar, Universidad Politécnica de Madrid (Spain), 2. Instituto de Micro y Nanotecnología (IMN-CNM, CSIC) (Spain), 3. Department of Physics, University of Warwick (UK), 4. Universidad Carlos III de Madrid (Spain))

Women in PV Luncheon

Wed. Nov 13, 2024 12:30 PM - 1:45 PM JST | Wed. Nov 13, 2024 3:30 AM - 4:45 AM UTC 408(4F)

[PV] Women in PV Luncheon

Sub area CC-1: Perovskite Tandems | Cross Cutting Areas：Sub area CC-1: Perovskite Tandems

Thu. Nov 14, 2024 9:00 AM - 10:30 AM JST | Thu. Nov 14, 2024 12:00 AM - 1:30 AM UTC
Convention Hall B(3F)

[Th1b-Oc1] Sub area CC-1: Perovskite-related tandem technologies

Session Chair(s):Yasuhiro Shirai(NIMS), Yasuaki Ishikawa(Aoyama Gakuin University)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[Th1b-Oc1-01 (Invited)]

Unlocking the Potential of Perovskite Solar Cells: from Single-Junction to Tandem

*Yi Hou[1] (1. National University of Singapore (Singapore))

9:30 AM - 9:45 AM JST | 12:30 AM - 12:45 AM UTC

[Th1b-Oc1-02]

Halogenated Polycyclic Aromatic Hydrocarbon for Hole Selective Layer/Perovskite Interface Modification and Passivation for Perovskite-Organic Tandem Cells with Record Fill Factor

*Md Arafat Mahmud[1], Jianghui Zheng[1], Jia-Fu Chang[3], Guoliang Wang[1], Chwenhaw Liao[1], Md Habibur Rahman[2], Walia Binte Tarique[2], Shi Tang[5], Jueming Bing[1], Zhuofeng Li[4], Limei Yang[7], Nina Novikova[5], Tik Lun Leung[1], Hongjun Chen[1], Jianpeng Yi[1], Runmin Tao[1], Marko Jankovec[6], Stephen Bremner[2], Julie Cairney[1], Ashraf Uddin[2], Hieu Nguyen[4], Trevor Smith[5], Stefania Peracchi[8], Chu-Chen Chueh[3], Anita W. Y. Ho-Baillie[1] (1. The University of Sydney (Australia), 2. University of New South Wales (Australia), 3. National Chinese Taipei University (Chinese Taipei), 4. Australian National University (Australia), 5. University of Melbourne (Australia), 6. University of Ljubljana (Slovenia), 7. University Technology Sydney (Australia), 8. Centre for Accelerator Science, Australian Nuclear Science and Technology Organisation (Australia))

9:45 AM - 10:00 AM JST | 12:45 AM - 1:00 AM UTC

[Th1b-Oc1-03]

Reliability challenges for encapsulation of perovskite-silicon tandem modules

*Gernot Oreski[1,2], Chiara Barretta[1], Petra Christöfl[1], Sem Sals[3], Bernd Stannowski[4], Quiterie Emery[4], Quentin Jeangros[5], Marcel Kuehne[6] (1. Polymer Competence Center Leoben (Austria), 2. Montanuniversität Leoben (Austria), 3. The Compound Company (Netherlands), 4. Helmholtz-Zentrum Berlin für Materialien und Energie (Germany), 5. Centre Suisse d'Electronique et de Microtechnique (Switzerland), 6. Hanwha QCells (Germany))

10:00 AM - 10:15 AM JST | 1:00 AM - 1:15 AM UTC

[Th1b-Oc1-04]

Peeling-Off Technique towards Lightweight-Flexible and Bifacial Perovskite/Cu(In,Ga)Se_2 Thin-Film Tandem Solar Cells

*Takahito Nishimura[1], Ryousuke Ishikawa[2], Yasuaki Ishikawa[3] (1. Tokyo Institute of Technology (Japan), 2. Tokyo City University (Japan), 3. Aoyama Gakuin University (Japan))

10:15 AM - 10:30 AM JST | 1:15 AM - 1:30 AM UTC

[Th1b-Oc1-05]

Effect of mobile ions on reverse bias degradation in perovskite-based photovoltaics

*Takeshi Tayagaki[1], Haruka Kobayashi[1], Kohei Yamamoto[1], Takurou N. Murakami[1], Masahiro Yoshita[1] (1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan))

Sub area 4-2: Compound Thin-film Photovoltaics | Area4: Thin-film Photovoltaics and Modules：Sub area 4-2: Compound Thin-film Photovoltaics

Thu. Nov 14, 2024 9:00 AM - 10:30 AM JST | Thu. Nov 14, 2024 12:00 AM - 1:30 AM UTC 301+302(3F)

[Th1c-O42] Sub area 4-2: Doping and heterointerfaces for high efficiency

Session Chair(s): Kenji Yoshino (U. Miyazaki), Guillermo Antonio Farias Basulto(HZB)

9:00 AM - 9:15 AM JST | 12:00 AM - 12:15 AM UTC

[Th1c-O42-01]

11.9% efficient Cd-Free Cu_2ZnSnS_4 solar cells enabled by mitigation of Na interstitial defects

*Xiaojie Yuan[1], Jianjun Li[1,2], Jialiang Huang[1], Jialin Cong[1], Lishuang Zhang[1], Karen Privat[3], Yin Yao[3], Zhou Xu[4], Robert J. Patterson[1], Guojun He[1], Ao Wang[1], Kaiwen Sun[1], Xin Cui[1], Martin A. Green[1], Xiaojing Hao[1] (1. Australian Centre for Advanced Photovoltaics, School of Photovoltaic and Renewable Energy Engineering, University of New South Wales, Sydney, New South Wales (Australia), 2. Shenyang National Laboratory for Materials Science, Institute of Metal Research, Chinese Academy of Sciences, 72 Wenhua Road, Shenyang (China), 3. Electron Microscope Unit, Mark Wainwright Analytical Centre, University of New South Wales, Sydney, New South Wales (Australia), 4. Monash Centre for Electron Microscopy, Monash University, Clayton, Victoria (Australia))

9:15 AM - 9:30 AM JST | 12:15 AM - 12:30 AM UTC

[Th1c-O42-02]

Unlocking the potential of Kesterite solar cells with Li-doping and Ag-alloying and perspectives for technology transfer

*Sergio Giraldo[1], Alex Jimenez-Arguijo[1], Yuancai Gong[1], Marcel Placidi[1], Zacharie Jehl Li-Kao[1], Edgardo Saucedo[1] (1. Universitat Politècnica de Catalunya (UPC) (Spain))

9:30 AM - 9:45 AM JST | 12:30 AM - 12:45 AM UTC

[Th1c-O42-03]

Exploring grain- and grain boundary-specific oxidation, post-deposition treatment, and buffer layer deposition in $Cu(In,Ga)Se_2$ absorbers

*Muhammad Uzair Farooq[1], Christian Kaufmann[2], Alex Redinger[3] (1. University of Luxembourg (Luxembourg), 2. Helmholtz-Zentrum Berlin (Germany), 3. University of Luxembourg (Luxembourg))

9:45 AM - 10:00 AM JST | 12:45 AM - 1:00 AM UTC

[Th1c-O42-04]

Extended structural defects and Na doping in epitaxially grown $Cu(In,Ga)Se_2$ solar cells

*Daniel Abou-Ras[1], Jiro Nishinaga[2], Takeyoshi Sugaya[2], Ulrike Bloeck[1], René Schwiddessen[1], Sinju Thomas[1], Dan R. Wargulski[1], Sebastian Weitz[1], Harvey Guthrey[3], Pat Trimby[4], Aimo Winkelmann[5], Ava Karami[6,7], Oana Cojocaru-Mirédin[7], Delwin Perera[8], Vasilios Karanikolas[8], Karsten Albe[8], Shogo Ishizuka[2] (1. Helmholtz-Zentrum Berlin (Germany), 2. National Institute of Advanced Industrial Science and Technology (Japan), 3. National Renewable Energy Laboratory (United States of America), 4. Oxford Instruments Nanoanalysis (UK), 5. ST Development GmbH (Germany), 6. RWTH Aachen (Germany), 7. Albert-Ludwigs Universität Freiburg (Germany), 8. TU Darmstadt (Germany))

10:00 AM - 10:15 AM JST | 1:00 AM - 1:15 AM UTC

[Th1c-O42-05]

Enhanced bulk and interface quality of high bandgap (Ag,Cu)(In,Ga)S_2 solar cells achieving 960 mV V_{OC} and over 13 % efficiency

*Guojun He[1], Kaiwen Sun[1], Ao Wang[1], Chang Yan[2], Xiaojing Hao[1] (1. The University of New South Wales (Australia), 2. The Hongkong University of Science and Technology (Guangzhou) (China))

10:15 AM - 10:30 AM JST | 1:15 AM - 1:30 AM UTC

[Th1c-O42-06]

Alternative electron selective contact designs in CIGS solar cells

*Sarallah Hamtaei[1,2,3], Guy Brammertz[1,2,3], Ruben Blomm[4], Nithin Poonkottil[4], Sean M Garner[5], Jolien Dendooven[4], Bart Vermang[1,2,3] (1. imec (Belgium), 2. Hasselt University (Belgium), 3. EnergyVille (Belgium), 4. University of Ghent (Belgium), 5. Corning Research and Development Corporation (United States of America))

Sub area 3-1: Materials, Processes, Fundamentals | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-1: Materials, Processes, Fundamentals

Thu. Nov 14, 2024 9:00 AM - 10:30 AM JST | Thu. Nov 14, 2024 12:00 AM - 1:30 AM UTC 401(4F)

[Th1d-O31] Sub area 3-1: Metallization

Session Chair(s):Nitin Nampalli(BT Imaging), Shota Suzuki(Toyo Aluminium)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[Th1d-O31-01 (Invited)]

Silver paste reduction for TOPCon solar cells using a hybrid Cu and Ag screen printing metallization

*Pirmin Preis[1], Jan Lossen[1], Mertcan Comak[1], Dominik Rudolph[1] (1. ISC Konstanz (Germany))

9:30 AM - 9:45 AM JST | 12:30 AM - 12:45 AM UTC

[Th1d-O31-02]

Screen printed copper contacts fired in air

*Thad Druffel[1], Ruvini Dharmadasa[1], Kevin Elmer[1], Dustin Williams[1], Erin Yenney[1], Apolo Nambo[1], Ajeet Rohatgi[2], Ajay Upadhyaya[2], Vijay Kumar[2], Paul Stradins[3], William Nemeth[3], Steve Johnston[3], Harvey Guthry[3] (1. Bert Thin Films, Inc (United States of America), 2. Georgia Institute of Technology (United States of America), 3. National Renewable Energy Laboratory (United States of America))

9:45 AM - 10:00 AM JST | 12:45 AM - 1:00 AM UTC

[Th1d-O31-03]

Evaluation of the interface between Ag-saving low-temperature curing electrode paste using Ag-coated Cu particles and transparent conductive oxide film

*Takuya Minowa[1], Tappei Nishihara[2,3], Hyunju Lee[1,2], Yoshio Ohshita[4], Kazuo Muramatsu[5], Ogura Atsushi[1,2] (1. Meiji University (Japan), 2. MREL (Japan), 3. JASRI (Japan), 4. Toyota Tech. Inst. (Japan), 5. NAMICS Corp. (Japan))

10:00 AM - 10:15 AM JST | 1:00 AM - 1:15 AM UTC

[Th1d-O31-04]

Fabrication of Silver Coated Aluminum Powder for Next Generation PV Paste

*Yiyu Zeng[1], Yajie Jiang[1], Martin Green[1] (1. University of New South Wales (Australia))

10:15 AM - 10:30 AM JST | 1:15 AM - 1:30 AM UTC

[Th1d-O31-06]

Enabling sub 15 micron hyperfine lines using Ag nanoparticle based pastes for low temperature solar cell applications to achieve cost reduction and faster throughput using different patterning technologies.

*Cesar Marcelo Manna[1] (1. PVNanocell (Israel))

Sub area 2-2: Field Performance of Photovoltaic Systems | Area2: System Engineering and Field Performance：Sub area 2-2: Field Performance of Photovoltaic Systems

Thu. Nov 14, 2024 9:00 AM - 10:30 AM JST | Thu. Nov 14, 2024 12:00 AM - 1:30 AM UTC 402(4F)

[Th1e-O22] Sub area 2-2: Field Performance of Photovoltaic Systems

Session Chair(s):Yasuyuki Ota(Univ. Miyazaki), Yasuo Chiba(AIST)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[Th1e-O22-01 (Invited)]

UV-Induced degradation in various module types

*Peter Hacke[1], Archana Sinha[1], Jiadong Qian[1], Stephanie L. Moffitt[1], Katherine Hurst[1], David C. Miller[1], Laura T. Schelhas[1], Florent Sahli[2], Marion Dussouillez[2,3], Quentin Jeangros[2,3], Antonin Faes[2,3], Alessandro Virtuani[2], Christian M. Wolff[3], Christophe Ballif[2,3] (1. NREL (United States of America), 2. CSEM (Switzerland), 3. EPFL (Switzerland))

9:30 AM - 9:45 AM JST | 12:30 AM - 12:45 AM UTC

[Th1e-O22-02]

Investigation on light elevated temperature-induced degradation of PERC PV modules

*Tanokkorn Chenvidhya Chenvidhya[1], Manit Seapan[1], Watcharee Phojan[1], Yaowanee Sangpongsanont[1], Ballang Muenpinij[1], Dhirayut Chenvidhya[1] (1. King Mongkut's University of Technology Thonburi (Thailand))

9:45 AM - 10:00 AM JST | 12:45 AM - 1:00 AM UTC

[Th1e-O22-03]

A Comparative Study of PERC, HJT and TOPCon Photovoltaic Modules Fielded in Hot Climates

*MAULID KIVAMBE[1], AMIR ABDALLAH[1], MOHAMED ABDELRAHIM[2] (1. Hamad Bin Khalifa University (HBKU), (Qatar), 2. Bin Omran Trading and Communication, (Qatar))

10:00 AM - 10:15 AM JST | 1:00 AM - 1:15 AM UTC

[Th1e-O22-04]

Annual degradation rates and soiling losses of photovoltaic systems in temperate climate

*Tetsuyuki Ishii[1] (1. Central Research Institute of Electric Power Industry (Japan))

10:15 AM - 10:30 AM JST | 1:15 AM - 1:30 AM UTC

[Th1e-O22-05]

Degradation behavior of 11-years field aged photovoltaic modules in Thailand science park

*Amornrat Limmanee[1], Rangson Pluemkamon[1], Nuttakarn Udomdachanut[1], Pratan Kosuwan[1], Saifon Kotesopa[1], Suttinan Jaroensathainchok[1], Aswin Hongsingthong[1] (1. ENTEC, National Science and Technology Development Agency (Thailand))

Sub area 5-2: Emerging Materials and New Concepts | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-2: Emerging Materials and New Concepts

Thu. Nov 14, 2024 9:00 AM - 10:30 AM JST | Thu. Nov 14, 2024 12:00 AM - 1:30 AM UTC 407(4F)

[Th1f-O52] Sub area 5-2: New Concepts and Emerging Technologies

Session Chair(s): Tooru Tanaka (Saga University), Tze Chien SUM (Nanyang Technological Univeristy)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[Th1f-O52-01 (Invited)]

Dual-wavelength laser power converters compatible with highly efficient solar cells using triplet-triplet annihilation and singlet fission of molecular systems

*Yasuhiko Takeda[1] (1. Toyota Central R&D Labs., Inc. (Japan))

9:30 AM - 9:45 AM JST | 12:30 AM - 12:45 AM UTC

[Th1f-O52-02]

Spectral Conversion Thin Films Based on Quantum Dots and Organic Semiconductor Hybrids

*Zhi-Long Zhang[1,2], Akshay Rao[2] (1. School of Emergent Soft Matter, South China University of Technology (China), 2. Cavendish Laboratory, University of Cambridge (UK))

9:45 AM - 10:00 AM JST | 12:45 AM - 1:00 AM UTC

[Th1f-O52-03]

Growth of P-doped ZnTe layer using a cracked Zn_3P_2 dopant source by MBE and its application to ZnTe based solar cells

*Muhamad Mustofa[1], Katsuhiko Saito[1], Qixin Guo[1], Tooru Tanaka[1] (1. Saga University (Japan))

10:00 AM - 10:15 AM JST | 1:00 AM - 1:15 AM UTC

[Th1f-O52-04]

Below-gap photon induced photocurrent enhancement in GaPN intermediate band solar cell fabricated by ion implantation

*Md Mamun Or Rashid[1], Kyoko Munakata[1], Shuhei Yagi[1], Hiroyuki Yaguchi[1] (1. Saitama University (Japan))

10:15 AM - 10:30 AM JST | 1:15 AM - 1:30 AM UTC

[Th1f-O52-05]

Maximum output power density by photon partitioning optimization in intermediate-band thermoradiative diodes

*Yukihiro Harada[1], Takashi Kita[1] (1. Kobe University (Japan))

Sub area CC-1: Perovskite Tandems | Cross Cutting Areas：Sub area CC-1: Perovskite Tandems

Thu. Nov 14, 2024 11:00 AM - 12:30 PM JST | Thu. Nov 14, 2024 2:00 AM - 3:30 AM UTC
Convention Hall B(3F)

[Th2b-Oc1] Sub area CC-1: All-perovskite tandem technologies

Session Chair(s):Dong-Won Kang(Chung-Ang University), Toshimitsu Mochiduki(AIST)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Th2b-Oc1-01 (Invited)]

All-Perovskite Tandem Solar Cells

*Dewei Zhao[1], Cong Chen[1], Jingwei Zhu[1], Yi Luo[1], Yuliang Xu[1] (1. Sichuan University (China))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Th2b-Oc1-02]

Simulation of Reverse-Bias Breakdown in All-Perovskite Tandem Solar Cells and its Impact on Module Performance under Partial Shading Conditions

*Urs Aeberhard[1,2], Simon J. Zeder[1,3], Hamilton Carillo Nuñez[1], Balthasar Bluelle[1], Beat Ruhstaller[1,4] (1. Fluxim AG (Switzerland), 2. ETH Zurich (Switzerland), 3. PV-Lab EPFL (Switzerland), 4. ZHAW - Zurich University of Applied Sciences (Switzerland))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Th2b-Oc1-03]

Bimolecular Crystallization Modulation Boosts the Efficiency and Stability of Methylammonium-Free Tin–Lead Perovskite and All-Perovskite Tandem Solar Cells

*Jianan Wang[1] (1. Huazhong University of Science and Technology (China))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Th2b-Oc1-04]

Triple-junction perovskite–perovskite–silicon photovoltaics

*Hang Hu[1,2], Sophie X. An[2], Yang Li[1,2], Seyedamir Orooji[1,2], Roja Singh[1,2], Fabian Schackmar[1,2], Felix Laufer[1,2], Qihao Jin[2], Thomas Feeney[1,2], Alexander Diercks[2], Fabrizio Gota[1,2], Somayeh Moghadamzadeh[1,2], Ting Pan[1,2], Michael Rienäcker[3], Robby Peibst[4], Bahram Abdollahi Nejand[1,2], Ulrich W. Paetzold[1,2] (1. Institute of Microstructure Technology (IMT), Karlsruhe Institute of Technology (KIT) (Germany), 2. Light Technology Institute (LTI), Karlsruhe Institute of Technology (KIT) (Germany), 3. Institute for Solar Energy Research Hamelin (ISFH) (Germany), 4. Institute of Electronic Materials and Devices, Leibniz Universität Hannover (Germany))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Th2b-Oc1-05]

Over 2.0 eV wide-bandgap perovskite solar cells with Voc >1.45V and >12% efficiencies.

*Yasuhiro Shirai[1], Dhruba B. Khadka[1], Masatoshi Yanagida[1], Kenjiro Miyano[1] (1. NIMS (Japan))

Sub area 2-2: Field Performance of Photovoltaic Systems | Area2: System Engineering and Field Performance：Sub area 2-2: Field Performance of Photovoltaic Systems

Thu. Nov 14, 2024 11:00 AM - 12:30 PM JST | Thu. Nov 14, 2024 2:00 AM - 3:30 AM UTC 301+302(3F)

[Th2c-O22] Sub area 2-2: Field Performance of Photovoltaic Systems

Session Chair(s):Tomonao Kobayashi(Gifu Univ), Yoshihito Eguchi(VENA Energy, Nippon Renewable Energy)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Th2c-O22-01 (Invited)]

Energy Impact of Different Solar Tracker Wind Stow Strategies

*Kyumin Lee[1], Kendra Passow[1], Mudasar Zahoor[1], Todd Andersen[1] (1. Array Technologies (United States of America))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Th2c-O22-02]

Modelling and optimization of east-west bifacial vertical PV systems for hot desert climates: A case study in Qatar

*Veronica Bermudez Benito[1], Juan Lopez-Garcia[1], Bashar Farooq[2], Nour B. Alabudi[2], Dhnaup Somasekharan Pillai[1] (1. Qatar Environment and Energy Research Institute (QEERI), Hamad Bin Khalifa University (HBKU) (Qatar), 2. Texas A&M University Qatar (TAMUQ) (Qatar))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Th2c-O22-03]

Impacts of the PV power station on local atmospheric environment in arid area

*Jia Zhang[1], Yuzhen Zhong[2], Junyu Tao[2], Yibo Wang[1] (1. Institute of Electrical Engineering, Chinese Academy of Sciences (China), 2. Tianjin University of Commerce (China))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Th2c-O22-04]

VIPV energy rating: How long do your solar electric vehicles run with solar energy backed by appropriate tests from international standards?

*Kenji Araki[1], Yasuyuki Ota[1], Kensuke Nishioka[1] (1. University of Miyazaki (Japan))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Th2c-O22-05]

Different snow melt and slide types on photovoltaic power systems

*Hideaki Ohtake[1], Takashi Oozeki[1], Masataka Imai[2], Masashi Niwano[3], Kosuke Ono[3] (1. National Institute of Advanced Industrial Science and Technology (Japan), 2. Tokyo University (Japan), 3. Meteorological Research Institute, Japan Meteorological Agency (Japan))

Sub area 3-2: Cells and Modules | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-2: Cells and Modules

Thu. Nov 14, 2024 11:00 AM - 12:30 PM JST | Thu. Nov 14, 2024 2:00 AM - 3:30 AM UTC 401(4F)

[Th2d-O32] Sub area 3-2: Sustainability in metallization of advanced solar cells

Session Chair(s):Pauls Stradins(National Renewable Energy Laboratory), Itaru Raifuku(Aoyama Gakuin University)

11:00 AM - 11:15 AM JST | 2:00 AM - 2:15 AM UTC

[Th2d-O32-01]

The future of Al thick film metallisation applications in evolving PV industry : a potential analysis

*Thomas Buck[1], Marwan Dharmin[2], Dominik Rudolph[1], Kosuke Tsuji[2] (1. ISC Konstanz (Germany), 2. Toyal (Japan))

11:15 AM - 11:30 AM JST | 2:15 AM - 2:30 AM UTC

[Th2d-O32-02]

Screen-Printed Metallisation with Ultra-Low Silver Consumption for Industrial Silicon Solar Cells

Yuchao Zhang[1], *Sisi Wang[1], Li Wang[1], Zhenyu Sun[1], Yuan-Chih Chang[1], Ran Chen[1], Catherine Chang[1], Kuninori Okamoto[2], Yiwei Ao[2], Dongliang Wang[2], Marwan Dhamrin[3,4], Tsuji Kosuke[3], Brett Hallam[1] (1. School of Photovoltaic and Renewable Energy Engineering, University of New South Wales (Australia), 2. Changzhou Fusion New Materials (China), 3. Toyo Aluminium K.K. (Japan), 4. Graduate School of Engineering, Osaka University (Japan))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Th2d-O32-03]

Enabling Silver-Free Metallization of the Rear Side of iTOPCon Cells Through Laser Bonding of Thin Aluminum Foil

*Oliver John[1], Daniel Ourinson[1], Gernot Emanuel[1], Andreas Brand[1], Jan-Frederik Nekarda[1], Ralf Preu[1] (1. Fraunhofer Institute for Solar Energy Systems ISE (Germany))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Th2d-O32-04]

Screen-printed aluminium contact for n-type TOPCon structure

*Yuhao Cheng[1], Yuchao Zhang[1], Shuo Deng[1], Lizhi Sun[1], Marwan Dhamrin[2], Martin Green[1], Ning Song[1] (1. School of Photovoltaic and Renewable Energy, UNSW, Australia (Australia), 2. Toyo Aluminium K.K., 341-14 Higashiyama, Ohtani, Hino-Cho, Gamo-Gun, Shiga, 529-1608, Japan (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Th2d-O32-05]

In free Silicon Heterojunction Solar Cells with SnO_2-based TCO layers

*Hitoshi Sai[1], Takashi Koida[1], Takuya Matsui[1] (1. AIST (Japan))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Th2d-O32-06]

Determination of distributed series resistance with industrial IV testers

*Donald Clugston[1], Bernhard Klöter[1] (1. WAVELABS Solar Metrology Systems GmbH (Germany))

Sub area 4-1: Organic and Inorganic Photovoltaics | Area4: Thin-film Photovoltaics and Modules：Sub area 4-1: Organic and Inorganic Photovoltaics

Thu. Nov 14, 2024 11:00 AM - 12:30 PM JST | Thu. Nov 14, 2024 2:00 AM - 3:30 AM UTC 402(4F)

[Th2e-O41] Sub area 4-1: Organic and Inorganic Photovoltaics

Session Chair(s):Yutaka Ie(Osaka Univ.), Keisuke Tajima(RIKEN)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Th2e-O41-01 (Invited)]

New p- and n-type photovoltaic materials for organic solar cells

*Han Young Woo[1] (1. Korea University (Korea))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Th2e-O41-02]

Development of a π-Conjugated Polymer Easily Synthesized Without Column Chromatography Towards Low-Cost Efficient Organic Photovoltaics

*Kodai Yamanaka[1], Masahiko Saito[1], Tsubasa Mikie[1], Itaru Osaka[1] (1. Hiroshima Univ. (Japan))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Th2e-O41-03]

Remarkable spectral tailoring of a nonfullerene acceptor for green-light wavelength-selective organic solar cells towards agrivoltaics: module fabrication and crop production

*SHREYAM CHATTERJEE[1], Seihou Jinnai[1], Taichi Moriyama[2], Morihiko Saida [3], Kenji Omote[3], Yasuyuki Watanabe[4], Yutaka Ie[1] (1. The Institute of Scientific and Industrial Research (SANKEN), Osaka University (Japan), 2. Ishihara Sangyo Kaisha, Ltd. (Japan), 3. Design solar inc. (Japan), 4. Department of Mechanical and Electrical Engineering, Faculty of Engineering, Suwa University of Science (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Th2e-O41-04]

Vertical Morphology Evolution in PffBT4T-2OD: ITIC Bulk Heterojunction Blends Influenced by ITIC Non-fullerene Acceptors Through Annealing

*Tzu-Yen Huang[1] (1. National Synchrotron Radiation Research Center (Chinese Taipei))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Th2e-O41-05]

Regulating Molecular Interfaces and Domain Characteristics for Efficient and Green Solvent Processable Organic Solar Cells

*Top Archie Dela Peña[1,2,3,4], Jiaying Wu[1,2], Ruijie Ma[3], Mingjie Li[3], Gang Li[3], He Yan[2] (1. The Hong Kong University of Science and Technology (Guangzhou) (China), 2. The Hong Kong University of Science and Technology (Hong Kong), 3. The Hong Kong Polytechnic University (Hong Kong), 4. The University of New South Wales (Australia))

Sub area 1-2: Grid Integration and Energy Management | Area1: PV in Sustainable Energy System：Sub area 1-2: Grid Integration and Energy Management

Thu. Nov 14, 2024 11:00 AM - 12:30 PM JST | Thu. Nov 14, 2024 2:00 AM - 3:30 AM UTC 407(4F)

[Th2f-O12] Sub area 1-2: Grid Integration and Energy Management

11:00 AM - 11:15 AM JST | 2:00 AM - 2:15 AM UTC

[Th2f-O12-01]

The National Solar Radiation Database (NSRDB): a global solar resource dataset for PV modeling

*Manajit Sengupta[1], Yu Xie[1], Aron Habte[1], Grant Buster[1], Brandon Benton[1], Paul Edwards[1], Jaemo Yang[1] (1. National Renewable Energy Laboratory (United States of America))

11:15 AM - 11:30 AM JST | 2:15 AM - 2:30 AM UTC

[Th2f-O12-02]

Firm PV Power

*Jan Remund[1], Richard Perez[2], Marc Perez[3] (1. Meteotest AG (Switzerland), 2. State Univ. of New York at Albany (United States of America), 3. Clean Power Research (United States of America))

11:30 AM - 11:45 AM JST | 2:30 AM - 2:45 AM UTC

[Th2f-O12-03]

Next generation tool for automatic deployment of PV systems in urban environments.

*Miroslav Zeman[1,2], Maarten Verkou[2], Yilong Zhou[2], Youri Blom[1], Malte Vogt[1], Rudi Santbergen[1], Olindo Isabella[1,2] (1. Delft University of Technology (Netherlands), 2. PV Works (Netherlands))

11:45 AM - 12:00 PM JST | 2:45 AM - 3:00 AM UTC

[Th2f-O12-04]

Battery energy storage system operation of an off-grid system for a data center, PV, and wind power plants

*Chiyori T. Urabe[1], Ayaka Nakamura[1], Mikimasa Iwata[1], Takeyoshi Kato[1] (1. Nagoya University (Japan))

12:00 PM - 12:15 PM JST | 3:00 AM - 3:15 AM UTC

[Th2f-O12-05]

Hybrid Photovoltaic - Concentrating Solar Power and Energy Storage System: An Economic Pathway to 100% Renewables?

*Joshua S Stein[1], Jenifer L Braid[1], Luke McLaughlin[1], Nathan Schroeder[1], Jeremy Sment[1], Henk Laubscher[1] (1. Sandia National Laboratories (United States of America))

12:15 PM - 12:30 PM JST | 3:15 AM - 3:30 AM UTC

[Th2f-O12-06]

A Prototype System of Decentralized Group-Based Battery Energy Management (DBEM): Empirical Study of PV-Battery Islanded Nanogrid Systems

*Umarin Sangpanich[1], Roongrojana Songprakorp[2], Veerapol Molyakul[1], Piyapath Siratarnsophon[1], Kulwadee Somboonviwat [1] (1. Faculty of Engineering at Sriracha, Kasetsart University (Thailand), 2. School of Energy, Environment and Materials, King Mongkut's University of Technology Thonburi, Thailand (Thailand))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Thu. Nov 14, 2024 2:00 PM - 3:30 PM JST | Thu. Nov 14, 2024 5:00 AM - 6:30 AM UTC Convention Hall B(3F)

[Th3b-O51] Sub area 5-1: Emergent perovskite photovoltaics

Session Chair(s): Hao-Wu Lin (National Tsing Hua Univ.), Takeshi Tayagaki (AIST)

2:00 PM - 2:30 PM JST | 5:00 AM - 5:30 AM UTC

[Th3b-O51-01 (Invited)]

High efficiency, stable perovskite solar cell minimodules

*Dongmei Li[1], Chunjie Huang[1], Yiming Li[1], Shiyu Jiang[1], Qingbo Meng[1] (1. Institute of Physics, Chinese Academy of Sciences (China))

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[Th3b-O51-02]

Efficient, stable $CsPbI_3$ solar cells

*Rui Zhang[1], Yuqi Cui[1], Chengyu Tan[1], Dongmei Li[1], Qingbo Meng[1] (1. Institute of Physics, Chinese Academy of Sciences (China))

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[Th3b-O51-03]

Development of multifunctional hole-collecting monolayer materials based on a saddle-like cyclooctatetraene skeleton for inverted perovskite solar cells

*Minh Anh Truong[1], Lucas Ueberricke[1], Tsukasa Funasaki[1], Yuta Adachi[1], Shota Hira[1], Tomoya Nakamura[1], Richard Murdey[1], Atsushi Wakamiya[1] (1. Institute for Chemical Research, Kyoto University (Japan))

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[Th3b-O51-04]

Impedance spectroscopy on perovskite solar cells degraded by outdoor exposure test

*Takuto Kojima[1], Takeshi Tayagaki[1], Kohei Yamamoto[1], Takurou N. Murakami[1], Masahiro Yoshita[1] (1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan))

3:15 PM - 3:30 PM JST | 6:15 AM - 6:30 AM UTC

[Th3b-O51-05]

Carbazole-free monolayers for tin-lead perovskite solar cells

*Gaurav Kapil[1,2], Qing Shen[1], Hiroshi Segawa[2], Shuzi Hayase[1] (1. University of Electrocommunications, Tokyo, Japan (Japan), 2. The University of Tokyo, Tokyo, Japan (Japan))

Sub area 3-2: Cells and Modules | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-2: Cells and Modules

Thu. Nov 14, 2024 2:00 PM - 3:30 PM JST | Thu. Nov 14, 2024 5:00 AM - 6:30 AM UTC 401(4F)

[Th3d-O32] Sub area 3-2: Modules and related technologies

Session Chair(s):Marwan Dhamrin(Osaka Univ.), Yasushi Sobajima(Gifu Univ.)

2:00 PM - 2:30 PM JST | 5:00 AM - 5:30 AM UTC

[Th3d-O32-01 (Invited)]

[Tentative] Photovoltatronics, Concept of Recycling PV, Concept of PV without plastic

*Olindo Isabella[1] (1. Delft University of Technology (Netherlands))

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[Th3d-O32-02]

Polyethylene Copolymers as Solar Cell Encapsulants: Properties, Challenges, and Future Directions

*Gernot Oreski[1], Chiara Barretta[1], Paul Gebhardt[2], Karl-Anders Weiss[2], David C Miller[3], Sona Ulicna[3], Michael Kempe[3], Laura Bruckman[4], Alessandro Virtuani[5], Hengyu Li[5], Brian Habersberger[6], Kristoof Proost[7], Marcel Kuehne[8] (1. Polymer Competence Center Leoben (Austria), 2. Fraunhofer ISE (Germany), 3. National Renewable Energy Laboratory (United States of America), 4. Case Western Reserve University (United States of America), 5. Centre Suisse d'Electronique et de Microtechnique (Switzerland), 6. DOW (United States of America), 7. IP Fab (Belgium), 8. Hanwha QCells (Germany))

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[Th3d-O32-03]

Environmental Stability of the Contact Resistivity of Interconnects Based on Electrically Conductive Adhesives and its Correlation to Photovoltaic Module Power Loss Under Accelerated Aging Testing

*Maria Ignacia Devoto Acevedo[1,2], Karl Wienands[1], Andreas Halm[1], Ralph Gottschalg[2,3], Daniel Tune[1] (1. International Solar Energy Research Center Konstanz e.V. (Germany), 2. Hochschule Anhalt/Anhalt University of Applied Sciences (Germany), 3. Fraunhofer Center for Silicon Photovoltaics (CSP) (Germany))

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[Th3d-O32-04]

Influence of aging test on curved crystalline Si photovoltaic unencapsulated modules with polycarbonate base

*Yo Yamakawa[1], Kazuma Ito[1], Yasuhiro Okada[2], Yohei Ogashiwa[2], Hiroaki Takahashi[2], Naoshi Kimura[3], Shuntaro Shimpo[4], Mitsunori Nagahara[4], Keisuke Ohdaira[4], Kazuhiro Gotoh[1,5], Atsushi Masuda[1,5] (1. Grad. School Sci. Tech., Niigata University (Japan), 2. Kyocera Corp. (Japan), 3. Okitsumo Inc. (Japan), 4. JAIST (Japan), 5. IRCNT, Niigata University (Japan))

3:15 PM - 3:30 PM JST | 6:15 AM - 6:30 AM UTC

[Th3d-O32-05]

The proof and potential of industrially implementing shade tolerance into PV modules with bypass diodes or parallel connections

*Jonathan Govaerts[1], Tom Borgers[1], Hamed Javanbakht Lomeri[1], Apostolos Bakovasilis[1], Rik Van Dyck[1], Bart Reekmans[1], Hariharsudan Sivaramakrishnan Radhakrishnan[1], Jef Poortmans[1],

Manuel Van den Storme[2], Guy Van den Storme[2] (1. imec-EnergyVille-UHasselt (Belgium), 2. VdSWeaving (Belgium))

Sub area 4-2: Compound Thin-film Photovoltaics | Area4: Thin-film Photovoltaics and Modules：Sub area 4-2: Compound Thin-film Photovoltaics

Thu. Nov 14, 2024 2:00 PM - 3:30 PM JST | Thu. Nov 14, 2024 5:00 AM - 6:30 AM UTC 402(4F)

[Th3e-O42] Sub area 4-2: Chalcogenide solar cells for tandem and new applications

Session Chair(s):Shogo Ishizuka(AIST), Xiaojing Hao(UNSW)

2:00 PM - 2:30 PM JST | 5:00 AM - 5:30 AM UTC

[Th3e-O42-01 (Invited)]

Insights from CIGS Community in Advancing Perovskite Tandem Applications

*Veronica Bermudez Benito[1] (1. HBKU-QEERI (Qatar))

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[Th3e-O42-02]

Perovskite-CIGSe tandem solar cell: over one year of outdoor monitoring

*Guillermo Antonio Farias Basulto[1], Ivona Kafedjiska[1], Maximilian Riedel[1], Quiterie Emery[1], Marko Remec[2], Paolo Graniero[3], Mark Khenkin[1], Christian A. Kaufmann[1], Iver Lauermann[1], Reiner Klenk[1], Steve Albrecht[3], Rutger Schlatmann[4], Carolin Ulbrich[1] (1. PVcomB/Helmholtz-Zentrum Berlin für Materialien und Energie (Germany), 2. University of Ljubljana, Faculty of Electrical Engineering, Laboratory of Photovoltaics and Optoelectronics (Slovenia), 3. Helmholtz-Zentrum Berlin für Materialien und Energie (Germany), 4. HTW Berlin - University of Applied Sciences Berlin (Germany))

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[Th3e-O42-03]

High efficiency Cu(In,Ga)Se_2 solar cells with cell separation by wet chemical etching

*Jiro Nishinaga[1], Yukiko Kamikawa[1], Hajime Shibata[1], Shogo Ishizuka[1] (1. AIST (Japan))

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[Th3e-O42-04]

Semi-transparent micro-striped chalcopyrite Cu(In,Ga)Se_2 solar cells for window applications

*Angélica Thomere[1], Nuno Rodrigues[1], Vikash Kumar[1], Pedro Anacleto[1], Sascha Sadewasser[1] (1. INL (Portugal))

3:15 PM - 3:30 PM JST | 6:15 AM - 6:30 AM UTC

[Th3e-O42-05]

Wide Range Band-Gap Tuning for High-Efficiency Kesterite Solar Cells via Solution Processing

Yuancai Gong[1], *Alex Jimenez Arguijo[1], Romain Scaffidi[2], Ivan Caño Pardes[1], Edoardo Maggi[1], Claudia Malerba[3], Matteo Valentini[3], David Payno[4], Guy Brammertz[2], Mirjana Dimitrievska[5], Bart Vermang[2], Zacharie Jehl Li-Kao[1], Sergio Giraldo[1], Edgardo Saucedo[1] (1. Polytechnic University of Catalonia (UPC) (Spain), 2. IMEC (Belgium), 3. ENEA (Italy), 4. Catalonia Institute for Energy Research (IREC (Spain), 5. EMPA (Switzerland))

Sub area 1-1: Policy, Market, Finance and Deployment | Area1: PV in Sustainable Energy System：Sub area 1-1: Policy, Market, Finance and Deployment

Thu. Nov 14, 2024 2:00 PM - 3:30 PM JST | Thu. Nov 14, 2024 5:00 AM - 6:30 AM UTC 407(4F)

[Th3f-O11] Sub area 1-1: Sustainability of PV manufacturing and technologies

Session Chair(s):Arnulf Jager-Waldau(European Commission Joint Research Centre), Izumi Kaizuka(RTS Corporation)

2:00 PM - 2:30 PM JST | 5:00 AM - 5:30 AM UTC

[Th3f-O11-01 (Invited)]

The Silicon to Solar (S2S) Study: A Policy Roadmap for Australian Solar Manufacturing

*Michelle Vaqueiro Contreras[1], Brett Hallam[2,1], Nathan Chang[1], Oliver Hartley[3], Muriel Watt[2] (1. University of New South Wales (Australia), 2. ITP Renewables (Australia), 3. Bright Dimension (Australia))

2:30 PM - 2:45 PM JST | 5:30 AM - 5:45 AM UTC

[Th3f-O11-02]

Recycling potential for securing PV materials in the future

*Keiichi Komoto[1], Naoto Takatsu[1], Mitsutoshi Okada[2], Shigeru Niki[2], Yuzuru Ueda[3] (1. Mizuho Research & Technologies, Ltd. (Japan), 2. NEDO Technology Strategy Center (Japan), 3. Tokyo University of Science (Japan))

2:45 PM - 3:00 PM JST | 5:45 AM - 6:00 AM UTC

[Th3f-O11-03]

Progress of the photovoltaic industry in the reduction of silver consumption for sustainable manufacturing

*Catherine Chan[1], Moonyong Kim[1], Yuchao Zhang[1], Li Wang[1], Sisi Wang[1], Ran Chen[1], Yuan-Chih Chang[1], Brett Hallam[1] (1. UNSW Sydney (Australia))

3:00 PM - 3:15 PM JST | 6:00 AM - 6:15 AM UTC

[Th3f-O11-04]

Floating Photovoltaics under Variable Economic Conditions:
Viability and Potential Support Mechanisms

*Leonardo Micheli[1], Fredy A. Sepúlveda-Velez[2], Diego L. Talavera[2] (1. Sapienza University of Rome (Italy), 2. University of Jaén (Spain))

3:15 PM - 3:30 PM JST | 6:15 AM - 6:30 AM UTC

[Th3f-O11-05]

Comparative evaluation of the carbon footprint of industrial PV modules with different cell and module technologies

MOONYONG KIM[1], Sisi Wang[1], *Li Wang[1], Catherine Chan[1], Brett Hallam[1] (1. School of Photovoltaic and Renewable Energy Engineering, UNSW Sydney (Australia))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Thu. Nov 14, 2024 4:00 PM - 5:30 PM JST | Thu. Nov 14, 2024 7:00 AM - 8:30 AM UTC Convention Hall B(3F)

[Th4b-O51] Sub area 5-1: Improved understanding perovskite photovoltaics

Session Chair(s): Takeshi Tayagaki (AIST), Hao-Wu Lin (National Tsing Hua Univ.)

4:00 PM - 4:30 PM JST | 7:00 AM - 7:30 AM UTC

[Th4b-O51-01 (Invited)]

Thermal stability of tin-based perovskites solar cells and all-perovskite solar cells composed of tin-based solar cells

*Shuzi Hayase[1] (1. The University of Electro-Communications (Japan))

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[Th4b-O51-02]

Unveiling what the eye can’t see: *in-situ* film quality assessment during perovskite slot-die coating by means of optical reflectance spectroscopy

Nasim Rezaei-Hartmann[1], Alexander Tarasov[2], Thorsten Brand[1], Claudine Groß[1], Enno Malguth[1], Florian Mathies[2], Olivier Ronsin[3], Kai Segadlo[3], Yuto Tomita[1], Eva Unger[2], *Christian Camus[1] (1. LayTec AG (Germany), 2. Helmholtz-Centre Berlin for Materials and Energy GmbH (Germany), 3. Forschungszentrum Jülich GmbH, Helmholtz Institute Erlangen-Nürnberg (IEK-11), Dynamics of Complex Fluids and Interfaces (Germany))

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[Th4b-O51-03]

Impact of Drying Processes and Thermal Profiles on the Nucleation of Perovskite Films

*Jihyun Jang[1] (1. Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea))

5:00 PM - 5:15 PM JST | 8:00 AM - 8:15 AM UTC

[Th4b-O51-04]

Coupling opto-electric and frequency-modulated techniques unravels the role of interfacial ionic aggregates in performance degradation and metastability of perovskite solar cells

*Juan Pablo Medina Flechas[1,2], Dounya Barrit[1], Carlos Chaparro[1], Paul Lin[1], Marion Provost[2], Estelle Cariou[2], Thomas Guillemot[2], Karim Medjoubi[2], Jorge Posada[3], Osbel Almora[4], Camille Bainier[1], Pilar Lopez[2], Philip Schulz[2] (1. TotalEnergies OneTech (France), 2. IPVF Institut Photovoltaïque d'Île-de-France (UMR 9006) (France), 3. EDF R&D, IPVF (France), 4. Universitat Rovira i Virgili (URV) (Spain))

5:15 PM - 5:30 PM JST | 8:15 AM - 8:30 AM UTC

[Th4b-O51-05]

Multicomponent Approach for Stable Methylammonium-Free Tin-Lead Perovskite Solar Cells

*Silver Hamill Turren Cruz[1,2,7], Jorge Pascual[2,4], Shuaifeng Hu[2,3], Jesus Sanchez-Diaz[1], Sergio Galve-Lahoz[1,4], Wentao Liu[2], Wolfram Hempel[5], Vladimir S. Chirvony[6], Juan P. Martinez-Pastor[6], Pablo P. Boix[6], Atsushi Wakamiya[2], Iván Mora-Seró[1] (1. University Jaume I (Spain), 2. Kyoto University (Japan), 3. University of Oxford (UK), 4. University of the Basque Country (Spain), 5. Zentrum für Sonnenenergie- und Wasserstoff-Forschung Baden-Württemberg (Germany), 6. University of Valencia (Spain), 7. Polish Academy of Sciences (Poland))

Sub area 5-2: Emerging Materials and New Concepts | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-2: Emerging Materials and New Concepts

Thu. Nov 14, 2024 4:00 PM - 5:30 PM JST | Thu. Nov 14, 2024 7:00 AM - 8:30 AM UTC 401(4F)

[Th4d-O52] Sub area 5-2: Perovskite-related New Materials and Technologies

Session Chair(s): Yasuhiro Tachibana (RMIT Univ.) , Yasuhiko Takeda (Toyota Central R&D Labs., Inc.)

4:00 PM - 4:30 PM JST | 7:00 AM - 7:30 AM UTC

[Th4d-O52-01 (Invited)]

Charge carrier dynamics of metal halide perovskite in correlation with their solar cell performance

*Yasuhiro Tachibana[1] (1. RMIT Univ. (Austrailia))

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[Th4d-O52-02]

Increased durability of formamidinium lead iodide perovskite solar cells attained by incorporating an adlayer composed of $FAPbI_3$-QDs treated with fs laser

*Vladimir Svrcek[1], Bruno Alessi[1], Calum McDonald[1], Zhihao Xu[1], Takuya Matsui[1] (1. AIST Tsukuba (Japan))

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[Th4d-O52-03]

Enhanced Efficiency and Stability of Sn:Ge (1:1) Perovskite Solar Cells Following Additive Engineering

*Ajay Kumar Baranwal[1], Qing Shen[1], Shuzi Hayase[1] (1. The University of Electro-Communications (Japan))

5:00 PM - 5:15 PM JST | 8:00 AM - 8:15 AM UTC

[Th4d-O52-04]

Band gap reducing strategies for ultra narrow band gap (~1.2 eV) halide perovskites by compositional engineering

*Jeong-Yeon Lee[1], Dong-Won Kang[1] (1. Chung-Ang University (Korea))

5:15 PM - 5:30 PM JST | 8:15 AM - 8:30 AM UTC

[Th4d-O52-05]

Silane derivatives with electron withdrawing group at a weak adhesion interface enhances stability of perovskite solar cells

*Chunyang Zhang[1], Nam-Gyu Park[1] (1. Sungkyunkwan University (Korea))

Sub area 4-1: Organic and Inorganic Photovoltaics | Area4: Thin-film Photovoltaics and Modules：Sub area 4-1: Organic and Inorganic Photovoltaics

Thu. Nov 14, 2024 4:00 PM - 5:30 PM JST | Thu. Nov 14, 2024 7:00 AM - 8:30 AM UTC 402(4F)

[Th4e-O41] Sub area 4-1: Organic and Inorganic Photovoltaics

Session Chair(s):Masatoshi Yanagida(NIMS), Tingli Ma(Kyushu Institute of Technology)

4:00 PM - 4:30 PM JST | 7:00 AM - 7:30 AM UTC

[Th4e-O41-01 (Invited)]

How to reduce the energy loss at the interfaces of dye-sensitized solar cells by controlling electron transfer rates

*Shogo Mori[1] (1. Shinshu University (Japan))

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[Th4e-O41-02]

Effect of Permanent Quadrupole on Donor-Acceptor Interfacial Electronic Levels in Organic Thin Film Solar Cells

*Makoto Miura[1], Kyohei Nakano[2], Keisuke Tajima[2], Hiroyuki Yoshida[3] (1. The Graduate School of Engineering (Japan), 2. RIKEN CEMS (Japan), 3. MCRC (Japan))

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[Th4e-O41-03]

Solution processing and applications of flexible organic photovoltaics

*Lulu Sun[1] (1. RIKEN (Japan))

5:00 PM - 5:15 PM JST | 8:00 AM - 8:15 AM UTC

[Th4e-O41-04]

Hysteresis analysis in perovskite solar cells by considering ionic conduction

*Ryotaro Fukuda[1], Takahito Nishimura[1], Akira Yamada[1] (1. Tokyo Institute of Technology (Japan))

5:15 PM - 5:30 PM JST | 8:15 AM - 8:30 AM UTC

[Th4e-O41-05]

Development of an Indium Tin Oxide Stack Layer for the Rear Contact of Semi-Transparent Perovskite Solar Cells as the Top Cell in Four-Terminal Tandem Solar Cells

Taweewat Krajangsang[1], Wassana Lekkla[2,3], Channarong Piromjit[1], *Amornrat Limmanee[1] (1. National Energy Technology Center (ENTEC), National Science and Technology Development Agency (NSTDA) (Thailand), 2. Department of Tool and Materials Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (KMUTT) (Thailand), 3. Research Center of Advanced Materials for Energy and Environmental Technology (MEET), King King Mongkut's University of Technology Thonburi (KMUTT) (Thailand))

Sub area 2-1: Integrated PV and Advanced Applications of Photovoltaics | Area2: System Engineering and Field Performance：Sub area 2-1: Integrated PV and Advanced Applications of Photovoltaics

Thu. Nov 14, 2024 4:00 PM - 5:30 PM JST | Thu. Nov 14, 2024 7:00 AM - 8:30 AM UTC 407(4F)

[Th4f-O21] Sub area 2-1: New Applications of Photovoltaics

Session Chair(s): Tetsuya Nakamura(JAXA), Mitsuru Imaizumi(Sanjo City Univ.)

4:00 PM - 4:30 PM JST | 7:00 AM - 7:30 AM UTC

[Th4f-O21-01 (Invited)]

Radiation sensing using Si, InGaP, CIGS, and perovskite solar cells

*Yasuki Okuno[1] (1. RIKEN (Japan))

4:30 PM - 4:45 PM JST | 7:30 AM - 7:45 AM UTC

[Th4f-O21-02]

Digital Twin Simulation for Optimization of Regional Energy Systems with Photovoltaic Generation

*Yoshitaka Hayakawa[1], Keiji Igarashi[2], Shuto Tsuchida[2], Noboru Yamada[2] (1. National Institute of Technology, Nagaoka College (Japan), 2. Nagaoka University of Technology (Japan))

4:45 PM - 5:00 PM JST | 7:45 AM - 8:00 AM UTC

[Th4f-O21-03]

Stability Evaluation of structural colored PV modules for BIPV applications

*Zhihao Xu[1], Takuya Matsui[1], Hitoshi Sai[1] (1. AIST (Japan))

5:00 PM - 5:15 PM JST | 8:00 AM - 8:15 AM UTC

[Th4f-O21-05]

Implementation and feasibility study of a digital twin model for a bifacial PV system using ray tracing method

*Seokhun Yoo[1]、Kyungsoo Lee[1]、Masakazu Ito[2] ((1. Tech University of Korea (Korea)、2. University of Fukui (Japan)))

Plenary | Plenary

Fri. Nov 15, 2024 9:00 AM - 9:30 AM JST | Fri. Nov 15, 2024 12:00 AM - 12:30 AM UTC Convention Hall A(1F)

[Fr1a-L2] Plenary 2

Session Chair:Hiromi Tobita(JET)

9:00 AM - 9:30 AM JST | 12:00 AM - 12:30 AM UTC

[Fr1a-L2-01]

TBA

*Akihiko Nakajima[1] (1. KANEKA (Japan))

Plenary | Plenary

Fri. Nov 15, 2024 9:30 AM - 10:00 AM JST | Fri. Nov 15, 2024 12:30 AM - 1:00 AM UTC Convention Hall A(1F)

[Fr1a-L2] Plenary 2

Session Chair:Mitsuru Imaizumi(Sanjo City Univ.)

9:30 AM - 10:00 AM JST | 12:30 AM - 1:00 AM UTC

[Fr1a-L2-02]

Solar Energy At Night Using A Thermoradiative Diode

*Ned Ekins-Daukes[1] (1. UNSW Sydney (Australia))

Plenary | Area4: Thin-film Photovoltaics and Modules

Fri. Nov 15, 2024 10:00 AM - 10:30 AM JST | Fri. Nov 15, 2024 1:00 AM - 1:30 AM UTC Convention Hall A(1F)

[Fr1a-L4] Plenary 4

Session Chair(s):Yoshitaro Nose(Kyoto Univ), Itaru Osaka(Hiroshima Univ.)

10:00 AM - 10:30 AM JST | 1:00 AM - 1:30 AM UTC

[Fr1a-L4-01]

High-efficiency multi-junction laser power converters for telecom wavelength operation

*Karin Hinzer[1] (1. University of Ottawa (Canada))

Plenary | Area4: Thin-film Photovoltaics and Modules

Fri. Nov 15, 2024 11:00 AM - 11:30 AM JST | Fri. Nov 15, 2024 2:00 AM - 2:30 AM UTC Convention Hall A(1F)

[Fr2a-L4] Plenary 4

Session Chair(s):Yoshitaro Nose(Kyoto Univ), Itaru Osaka(Hiroshima Univ.)

11:00 AM - 11:30 AM JST | 2:00 AM - 2:30 AM UTC

[Fr2a-L4-01]

Rational Molecular Design for Dye-Sensitized and Bulk Heterojunction Solar Cells

*Hiroshi Imahori[1] (1. Kyoto University (Japan))

Plenary | Area4: Thin-film Photovoltaics and Modules

Fri. Nov 15, 2024 11:30 AM - 12:00 PM JST | Fri. Nov 15, 2024 2:30 AM - 3:00 AM UTC Convention Hall A(1F)

[Fr2a-L4] Plenary 4

Session Chair(s):Yoshitaro Nose(Kyoto Univ), Itaru Osaka(Hiroshima Univ.)

11:30 AM - 12:00 PM JST | 2:30 AM - 3:00 AM UTC

[Fr2a-L4-02]

Flexible Perovskite/Chalcopyrite Tandem Solar Cells for New Field Applications

*Hiroki Sugimoto[1] (1. PXP Corporation (Japan))

Closing | Closing

Fri. Nov 15, 2024 12:00 PM - 1:30 PM JST | Fri. Nov 15, 2024 3:00 AM - 4:30 AM UTC Convention Hall A(1F)

[Closing] Closing

Welcome to the Closing Session
Highlights of the Conference
Ceremony of the Awards
Announcement upcoming PV events
Farewell and Closing

12:00 PM - 1:30 PM JST | 3:00 AM - 4:30 AM UTC

Closing

Posters

Sub area 3-1: Materials, Processes, Fundamentals | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-1: Materials, Processes, Fundamentals

Tue. Nov 12, 2024 11:00 AM - 12:30 PM JST | Tue. Nov 12, 2024 2:00 AM - 3:30 AM UTC PS-11/Multipurpose Hall (1F)

[Tu2-P31] Sub area 3-1 : Materials, Processes, Fundamentals

[Tu2-P31-01]

Solar silicon: the past, the present, and the Future

*Chung-wen Lan[1] (1. National Chinese Taipei University (Chinese Taipei))

[Tu2-P31-02]

Temperature Dependence of the Ambipolar Auger Coefficient in Crystalline Silicon

*Lachlan E. Black[1], Yan Zhu[2], Ziv Hameiri[2], Daniel H. Macdonald[1] (1. Australian National University (Australia), 2. University of New South Wales (Australia))

[Tu2-P31-03]

On the nature of separated striations in n-type Czochralski silicon solar cells

*Guixiu Li[1,2], Shuai Yuan[1,2], Shenglang Zhou[3], Yihua Wu[3], Hongrong Chen[3], Huali Zhang[3], Chen Wang[3], Lei Wang[1], Xuegong Yu[1], Deren Yang[1,2] (1. State Key Laboratory of Silicon and Advanced Semiconductor Materials and School of Materials Science and Engineering, Zhejiang University (China), 2. Shangyu Institute of Semiconductor Materials (China), 3. Jiangsu GCL Silicon Material Technology Development Co., Ltd (China))

[Tu2-P31-04]

Electrical property of iron-decorated stacking fault and its hydrogenation in n-type Czochralski silicon used for photovoltaic

*Ruokai Wu[1], Xuegong Yu[1], Deren Yang[1] (1. Zhejiang University (China))

[Tu2-P31-05]

Effects of carbon concentration in silicon crystal on the concentration of defects induced by IWO-RPD process

*Keita Kimura[1], Tomohiko Hara[1,2], Yoshio Ohshita[1] (1. Toyota Technological Institute (Japan), 2. Ritsumeikan University (Japan))

[Tu2-P31-06]

Analysis of crystal defects inside mono-cast Si ingot using PL imaging

*Hidetaka Hirono[1], Hitoshi Matsuo[2], Hideyoshi Tanabe[2], Noritaka Usami[1,3,4] (1. Graduate School of Engineering, Nagoya University (Japan), 2. Kyocera corporation (Japan), 3. InFuS, Nagoya university (Japan), 4. IMaSS, Nagoya university (Japan))

[Tu2-P31-07]

Exciton Fission Enhanced Silicon Solar Cell

*Kangmin Lee[1], Narumi Nagaya[1], Collin F. Perkinson[1], Aaron Li[1], Youri Lee[2], Xinjue Zhong[3], Sujin Lee[3], Leah P. Weisburn[1], Tomi K. Baikie[1], Moungi G. Bawendi[1], Troy Van Voorhis[1], William A. Tisdale[1], Antoine Kahn[3], Kwanyong Seo[2], Marc A. Baldo[1] (1. Massachusetts Institute of Technology (United States of America), 2. Ulsan National Institute of Science and Technology (Korea), 3. Princeton University (United States of America))

[Tu2-P31-08]

A study of laser doping process with p-doped amorphous silicon layer for high-efficiency integrated back contact cell

*Yeongseo Son[1], MyeongSeob Sim[2], Hoyoung Song[2], Youngho Choe[3], Yoonmook Kang[1], Hae-Seok Lee[1], Donghwan Kim[2] (1. Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea), 2. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 3. Institute of Energy Technology, Korea University, Republic of Korea (Korea))

[Tu2-P31-09]

Numerical simulation study for analysis of Si nanocrystal / SiO_x compound layer by ReaxFF Molecular Dynamics

*Genta Tamura[1,2], Naoya Uene[2], Kazuhiro Gotoh[3,4,5], Noritaka Usami[5], Takashi Tokumasu[2] (1. Graduate School of Eng., Tohoku University (Japan), 2. Inst. of Fluid Science, Tohoku University (Japan), 3. School of Eng., Niigata University (Japan), 4. IRCNT, Niigata University (Japan), 5. Graduate School of Eng., Nagoya University (Japan))

[Tu2-P31-10]

Improved passivation of Al-doped zinc oxide passivating contacts for silicon solar cells by engineering the proximity of the first layer of aluminum atoms to the silicon interface

*Piyumi Kodithuwakku[1], Daniel Macdonald[2], Lachlan Black[3] (1. PhD student (Australia), 2. Professor (Australia), 3. Senior Research Fellow (Australia))

[Tu2-P31-11]

Improving the passivation performance of doped poly-Si contacts on textured surfaces

*Rabin Basnet[1], Wei Wang[1], Anitta Rose Varghese[1], Stephane Armand[1], Heping Shen[1], Daniel Macdonald[1] (1. The Australian National University (Australia))

[Tu2-P31-12]

Suppression of film blistering in silicon nano-crystals/silicon oxide composite layer by insertion of intrinsic hydrogenated amorphous silicon layer

*Kazushi Mizutani[1], Kazuhiro Gotoh[1,2,3], Tomohisa Tachibana[4], Yasuyoshi Kurokawa[1,6], Takahiro Ozawa[5], Markus Wilde[5], Katsuyuki Fukutani[5], Noritaka Usami[1,6,7] (1. Nagoya University (Japan), 2. Niigata University (Japan), 3. IRCNT, Niigata University (Japan), 4. FREA, AIST (Japan), 5. University of Tokyo (Japan), 6. InFuS, Nagoya University (Japan), 7. IMaSS, Nagoya University (Japan))

[Tu2-P31-13]

Electrical properties manipulation of nanocrystalline silicon/silicon oxide composite films

*Kaori Takagi[1], Asaki Arata[2], Yasuyoshi Kurokawa[2,3], Atsushi Masuda[1,4], Noritaka Usami[2,3,5], Kazuhiro Gotoh[1,2,4] (1. Grad. Sch. Sci. Technol., Niigata Univ. (Japan), 2. Grad. Sch. Engr., Nagoya Univ. (Japan), 3. InFuS, Nagoya Univ. (Japan), 4. IRCNT, Niigata Univ. (Japan), 5. IMaSS, Nagoya Univ. (Japan))

[Tu2-P31-14]

High-Quality Tunnel Oxide Passivated Contact Fabricated Using Sputtered Amorphous Silicon and Spin-On Doping

*Shasha Li[1], Koki Omori[1], Yasushi Kawaguchi[1], Noboru Yamaguchi[1], Shinsuke Miyajima[1] (1. Tokyo Institute of Technology (Japan))

[Tu2-P31-15]

How Low Can Poly Go: Development of Nanometer-scale Transparent Polysilicon Passivated Contacts

*Kean Chern Fong[1], Di Yan[2], Stephane Armand[1], Peiting Zheng[3], Xinyu Zhang[3], Jie Yang[3], James Bullock[2], Daniel MacDonald[1] (1. The Australian National University (Australia), 2. University of Melbourne (Australia), 3. Jinko Solar (China))

[Tu2-P31-16]

Effect of TiO_x layer thickness and LiF interlayer on the passivation performance of TiO_x/Si heterostructure

*Shohei Fukaya[1], Kazuhiro Gotoh[1,3,4], Hitoshi Sai[2], Yasuyoshi Kurokawa[1], Noritaka Usami[1,5], Takuya Matsui[2] (1. Graduate School of Engineering, Nagoya University (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan), 3. Graduate School of Science and Technology, Niigata University (Japan), 4. IRCNT, Niigata University (Japan), 5. InFuS, Nagoya University (Japan))

[Tu2-P31-17]

Numerical analysis of TiO_x/Si Heterostructure with Molecular Dynamics Simulation

*Shohei Fukaya[1], Yuto Michishita[1], Naoya Uene[2], Kazuhiro Gotoh[1,3,4], Takashi Tokumasu[2], Noritaka Usami[1,5] (1. Graduate School of Engineering, Nagoya University (Japan), 2. Institute of Fluid Science, Tohoku University (Japan), 3. Graduate School of Science and Technology, Niigata University (Japan), 4. IRCNT, Niigata University (Japan), 5. Institutes of Innovation for Future Society, Nagoya University (Japan))

[Tu2-P31-18]

Impact of microstructure of PEDOT:PSS on the performance of Si heterojunction solar cells

*Kengo Yamanaka[1], Yasuyoshi Kurokawa[2], Tetsuo Soga[1], Shinya Kato[1] (1. Nagoya Institute of Technology (Japan), 2. Nagoya University (Japan))

[Tu2-P31-19]

ALD-TiOx and PVD-MoOx in dopant-free silicon heterojunction solar cells

*Liqi Cao[1], Roel Theeuwes[2], Yifeng Zhao[1], Paul Procel[1], Erwin Kessels[2], Miro Zeman[1], Luana Mazzarella[1], Olindo Isabella1[1] (1. Delft University of Technology (Netherlands), 2. Eindhoven University of Technology (Netherlands))

[Tu2-P31-20]

Silicon heterojunction solar cells with double-layer structure (n)nc-SiO_X: H.

*Guanlan Chen[1], Xuejiao Wang[1], Yuxiang Li[1], Xiaodan Zhang[1], Ying Zhao[1] (1. Nankai University (China))

[Tu2-P31-21]

Deep Level Transient Spectroscopy Study of Silicon Heterojunction Solar Cells

*Ka-Hyun Kim[1], Dohoe Kim[1], Yongrae Kim[1], Yuntak Han[1], Jinyoung Lee[1], Seowoo Sim[1] (1. Chungbuk National University (Korea))

[Tu2-P31-22]

Laser cutting induced damage in heterojunction silicon solar Cells

*Xiang Lv[1], Zechen Hu[1], Qiyuan He[1], Lifei Yang[2], Deren Yang[1], Xuegong Yv[1] (1. State Key Laboratory of Silicon and Advanced Semiconductor Materials and School of Materials Science and Engineering, Zhejiang University (China), 2. SuZhou GH New Energy Tech (China))

[Tu2-P31-23]

Investigation of deposition conditions for multilayer passivation thin filmsusing Bayesian optimization with hydrogen concentration as an index

*Soma Kondo[1], Yasuyoshi Kurokawa[1,2], Kazuhiro Gotoh[3,4], Kentaro Kutukake[1,5], Noritaka Usami[1,2,5] (1. Grad. Sch Eng, Nagoya Univ (Japan), 2. InFuS,Nagoya Univ (Japan), 3. Grad. Sch Sci. Technol,Niigata Univ (Japan), 4. IRCNT,Niigata Univ (Japan), 5. IMass, Nagoya Univ (Japan))

[Tu2-P31-24]

Hydrogen diffusion and passivation in a-Si:H/Si heterojunction

*Ryoji Asahi[1], Koki Sato[1], Takayuki Semba[1], Ryosuke Jinnouchi[1] (1. Nagoya University (Japan))

[Tu2-P31-25]

Investigating the Impact of UV Light During PECVD on Defect Formation and Electrical Performance in Silicon Solar Cells Using C-V Analysis

*SUBHASH CHAND YADAV[1], Hyunju Lee [2], Tomohiko Hara[3], Yoshio Ohshita[1] (1. TOYOTA TECHNOLOGICAL INSTITUTE JAPAN (Japan), 2. Meiji University, Japan (Japan), 3. Ritsumeikan University, Japan (Japan))

[Tu2-P31-26]

Preparation of mixed amorphous oxide films for passivation of crystalline silicon surfaces by mist chemical vapor deposition

*Koji Arafune[1], Atsushi Nakano[1], Takuto Otsuji[1], Rikuto Yabubayashi[1] (1. University of Hyogo (Japan))

[Tu2-P31-27]

Outstanding Surface Passivation of Textured Si Surfaces by Chlorinated Thin Films

*Mohamed M. Shehata[1], Daniel H. Macdonald[1], Lachlan E. Black[1] (1. School of Engineering, The Australian National University, Canberra, ACT 2600, Australia. *mohamed.ismael@anu.edu.au (Australia))

[Tu2-P31-28]

Deposition of silicon dioxide thin films on black silicon nanowires by liquid phase deposition process for photovoltaic applications.

*Muhiddin Ahmad Sheriff[1,2], Md Roslan Hashim[2], Mohd Zamir Pakhuruddin[2,3], Mohammed Waziri Zanna[1], Adamu Ahmed Goje[1] (1. Federal Polytechnic Damaturu, P.M.B. 1006, Yobe state, (Nigeria), 2. School of Physics, Universiti Sains Malaysia, 11800, Minden, Penang, (Malaysia), 3. Institute of Nano Optoelectronics Research and Technology (INOR), Universiti Sains Malaysia, 11800, USM Penang, (Malaysia))

[Tu2-P31-29]

Preparation of silicon nanosheets for solar cell applications

*Sota Okochi[1], Satoru Miyamoto[1], Shinya Kato[2], Noritaka Usami[1,3,4], Yasuyoshi Kurokawa[1] (1. Nagoya University (Japan), 2. Nagoya Institute of Technology (Japan), 3. InFuS Nagoya University (Japan), 4. IMaSS Nagoya University (Japan))

[Tu2-P31-30]

Improvement of surface roughness through surface modification and viscosity

*Tomohisa Goto Goto[1], Shogo Otsuka[1], Masami Kobayashi[1], Masaki Nakamura[1] (1. USHIO (Japan))

[Tu2-P31-31]

Highly controllable metal free sub-micrometre texturing of silicon substrate

*Wei Wang[1], Rabin Basnet[1], Qian Cui[1], Daniel MacDonald[1], Klaus Weber[1], Heping Shen[1] (1. The Australian National University (Australia))

[Tu2-P31-33]

Effect of cooling rate temperature on controlling the Ge concentration in SiGe layer formation

*Sarah Saleh Alamri[1], Shota Suzuki[2], Moeko Matsubara[2], Kaito Kitaura[1], Taruna Jupalli[1], Yuqing Li[1], Hideaki Minamiyama[2], Takashi Kuroki[2], Satoshi Hamaguchi[1], Marwan Dhamrin[1,2] (1. Graduate School of Engineering, Osaka University. (Japan), 2. Toyo Aluminium K.K, Yao, Osaka. (Japan))

[Tu2-P31-34]

Epitaxial growth of SiGe with thick Ge-rich regions on Si(111) substrates by screen-printing and annealing

*Kohei Ito[1], Ryoji Katsube[1], Yuki Imai[2], Satoru Miyamoto[1,2], Shota Suzuki[3], Hideaki Minamiyama[3], Marwan Dhamrin[3,4], Noritaka Usami[1,2,5] (1. Graduate School of Engineering, Nagoya University (Japan), 2. Institutes of Innovation for Future Society, Nagoya University (Japan), 3. Toyo Aluminium K.K (Japan), 4. Graduate School of Engineering, Osaka University (Japan), 5. Institute of Materials and Systems for Sustainability, Nagoya University (Japan))

[Tu2-P31-35]

Effect of Ge contents in the Al-Ge paste on SiGe layer growth characteristics by Al-induced crystallization method

*yuqing Li[1], Taruna Teja Jupalli[1], Shota Suzuki[2], Sarah Alamri[1], Moeko Matsubara[2], Hideaki Minamiyama[2], Marwan Dhamrin[1,2] (1. Graduate School of Engineering, Osaka University (Japan), 2. Toyo Aluminium K.K, Yao (Japan))

[Tu2-P31-36]

Effect of pre-oxidation parameters on Al-Ge screen printed silicon substrates for improved SiGe layer growth

*Taruna Teja Jupalli[1], Shota Suzuki[2], Sarah Alamri[1], Yuqing Li [1], Kaito Kitaura[1], Moeko Matsubara[2], Hideaki Minamiyama[2], Marwan Dhamrin[1,2] (1. Graduate School of Engineering, Osaka University (Japan), 2. Toyo Aluminium K.K (Japan))

[Tu2-P31-37]

Silver Recovery from Crystalline Silicon Photovoltaic Solar Cells using Continuous Stirred-Tank Reactors

Shuang Song[1], *Yuting Zhuo[1] (1. University of New South Wales (Australia))

[Tu2-P31-38]

Heat Transfer Calculation in Silicon Solar Module: A Computational Approach

*Myeongji Woo[1], MyeongSeob Sim[2], Ji Woo Sohn[3], Dongjin Choi[4], Youngho Choe[5], Donghwan Kim[6], Hae-Seok Lee[7], Yoonmook Kang[8] (1. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 2. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 3. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 4. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 5. Institute of Energy Technology, Korea University, Republic of Korea (Korea), 6. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 7. Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea), 8. Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea))

[Tu2-P31-39]

Moisture ingress evaluation in UV exposed double glass PV modules

*Sergiu Pop[1], Mihail Bora[2] (1. SCP SYS (United States of America), 2. Lawrence Livermore National Laboratory (United States of America))

Sub area 4-2: Compound Thin-film Photovoltaics | Area4: Thin-film Photovoltaics and Modules：Sub area 4-2: Compound Thin-film Photovoltaics

Tue. Nov 12, 2024 11:00 AM - 12:30 PM JST | Tue. Nov 12, 2024 2:00 AM - 3:30 AM UTC PS-12/Multipurpose Hall (1F)

[Tu2-P42] Sub area 4-2: Compound Thin-film Photovoltaics

[Tu2-P42-01]

Doping technology for High-efficiency Transparent Cu2O Top cells

*Yuya Honishi[1], Naoyuki Nakagawa[1], Soichiro Shibasaki[1], Yukitami Mizuno[1], Atsushi Wada[1], Sara Yoshio[1], Motohiro Toyota[1], Kodai Wakamatsu[1], Takashi Yamamoto[1], Junji Sano[1], Kanta Sugimoto[1], Kazushige Yamamoto[1] (1. Toshiba Corporation (Japan))

[Tu2-P42-03]

Electrical properties of the $Cu_2Sn_{1-x}Ge_xS_3$ absorbing layer in solar cells as determined by admittance spectroscopy and related methods

*Ayaka Kanai[1], Takeshi Tasaki[2], Hideaki Araki[2], Kunihiko Tanaka[1] (1. Nagaoka University of Technology (Japan), 2. National Institute of Technology, Nagaoka College (Japan))

[Tu2-P42-04]

Study on the deposition process of metal precursors in $Cu(In,Ga)S_2$

*Yota Suzuki[1], Hiromu Kobayashi[1], Takahito Nishimura[1], Akira Yamada[1] (1. Tokyo Institute of Technology (Japan))

[Tu2-P42-05]

Defect regulation in Emerging Kesterite Solar Cells

*Jiangjian Shi[1], Qingbo Meng[1] (1. Institute of Physics, Chinese Academy of Sciences (China))

[Tu2-P42-06]

Self-healing effects of heat-light soaking on proton-bombarded $Cu(In,Ga)(S,Se)_2$ solar cells for low earth orbit applications

*Yao-Kai Chang[1], Tzu-Ying Lin[1] (1. National Tsing Hua University (Chinese Taipei))

[Tu2-P42-07]

Solar cell neutron dosimeters using screen-printed B_4C, LiF, and Gd_2O_3 converter-films

*Tamotsu Okamoto[1], Koshi Kato[1], Akito Iwasaki[1], Ayuto Kobayashi[1], Yuji Kurimoto[1], Yukiko Kamikawa[2], Yasuki Okuno[3], Tomohiro Kobayashi[3] (1. National Institute of Technology, Kisarazu College (Japan), 2. AIST (Japan), 3. RIKEN (Japan))

[Tu2-P42-08]

Development of Li-doped NiO Thin Films for Effective Hole Transport in CIGSe Solar Cells

*Yosuke Abe[1], Takahito Nishimura[1], Akira Yamada[1] (1. Tokyo Institute of Technology (Japan))

[Tu2-P42-09]

Study of alkali metal-controlled band engineering of chalcogenide semiconductors

*Kazuo Jimbo[1], Yosuke Shimamune[1] (1. National Institute of Technology, Nagaoka College, Japan (Japan))

[Tu2-P42-10]

Development of CZTS thin film solar cells with sulfurized ZnO buffer

*Yosuke Shimamune[1], Towa Maruyama[2], Kazuo Jimbo[1] (1. National Institute of Technology (KOSEN), Nagaoka College (Japan), 2. Nagaoka University of Technology (Japan))

[Tu2-P42-11]

Defect engineering in arsenic-doped CdTe single crystals for photovoltaic application

*Akira Nagaoka[1], Kenji Yoshino[1], Koji Kimura[2], Koichi Hayashi[2], SU-Huai Wei[3], Kensuke Nishioka[1] (1. University of Miyazaki (Japan), 2. Nagoya Institute of Technology (Japan), 3. Beijing Computational Science Research Center (China))

[Tu2-P42-12]

Enhanced self-healing behaviors of (Ag,Cu)(In,Ga)Se_2 thin-film solar cells through Ag incorporation

*Kai-Chun Lo[1], Tzu-Ying Lin[1] (1. National Tsing Hua University (Chinese Taipei))

[Tu2-P42-13]

Enhanced radiation resistance in potassium doped Cn(In,Ga)$(S,Se)_2$ thin-film solar cells

*Wei-Huang Chen[1], Tzu-Ying Lin[1] (1. National Tsing Hua University (Chinese Taipei))

[Tu2-P42-14]

Na doping effects for photoluminescence of $Cu_2Sn_{1-x}Ge_xS_3$ thin films

*Ryodai Ichihara[1], Takeshi Tasaki[2], Hideaki Araki[2], Ayaka Kanai[1], Kunihiko Tanaka[1] (1. Nagaoka University of Technology (Japan), 2. National Institute of Technology (KOSEN), Nagaoka College (Japan))

[Tu2-P42-15]

Effect of Rb addition on Cu_2SnS_3 thin film solar cells

*Kazuki Hasegawa[1], Hideaki Araki[1] (1. National Institute of Technology, Nagaoka College (Japan))

[Tu2-P42-16]

Structural and optical properties of widegap CIGS/ZTO heterojunction solar cells

*Takeshi Nishida[1], Norio Terada[1,2], Shogo Ishizuka[1] (1. AIST (Japan), 2. Kagoshima Univ. (Japan))

[Tu2-P42-17]

Deposition of $(In, Ga)_2S_3$ thin film via mist CVD method under a controlled atmosphere

*Akihiro Funaki[1], Yohei Araki[1], Takahito Nishimura[1], Akira Yamada[1] (1. Tokyo Institute of Technology (Japan))

[Tu2-P42-18]

Unveiling the Potential of Four Terminal Chalcogenide-Bornite Tandem Solar Cell

*Deepak Joshi[1], HITARTH PATEL[1], Sharadkumar Fadadu[1], Ashok Meka[1], Vivek Garg[1] (1. S V National Institute of Technology (India))

[Tu2-P42-19]

Analysing the effectiveness of Thin-films for Multijunction Photovoltaic Applications: Chalcogenide and Bournonite

*Deepak Joshi[1], Sharadkumar Fadadu[1], Hitarth Patel[1], Prashant Reddy[1], Prathamrajsinh Chauhan[1] (1. Sardar Vallabhbhai National Institute of Technology, Surat (India))

[Tu2-P42-20]

Fabrication of (Ge, Sn)S thin film solar cells prepared by co-evaporation

*Sora Daimon[1], Hideaki Araki[1] (1. National Institute of Technology, Nagaoka College (Japan))

[Tu2-P42-21]

Improving efficiency of low-temperature single grading Cu(In,Ga)Se_2 thin film solar cells through CsF post-deposition treatment

*JuHee Lee[1], Seunghwan Ji[1], Yazi Wang[1], Byungha Shin[1] (1. Korea Advanced Institute of Science and Technology (KAIST) (Korea))

[Tu2-P42-22]

Fabrication and characterization of potassium and silver alloyed CIASSe solar cells

JunHo Kim[1], *TaeEi Hong[1], Md. Matiur Rahman[1], HaeHoon Jung[1] (1. Department of Physics, Incheon National University (Korea))

[Tu2-P42-23]

Formation of novel $BaSi_2$ light absorber layers on n^+-Si electron transport layers by RF sputtering

*Takumi Sato[1], Rui Du[1], Koki Hayashi[1], Yoichiro Koda[2], Masami Mesuda[2], Kaoru Toko[1], Takashi Suemasu[1] (1. University of Tsukuba (Japan), 2. Tosoh Corporation (Japan))

[Tu2-P42-24]

Chemical bath deposition of Zn(O,S) buffer for CIGSSe thin-film solar cells

*Md Matiur Rahman[1], Namuundari Otgontamir[1], TaeEi Hong[1], JunHo Kim[1] (1. Department of Physics, Incheon National University (Korea))

[Tu2-P42-25]

Performance enhancement of $Sb_2(S,Se)_3$ solar cells by tailoring bandgap gradient via a hybrid growth method

*Seunghwan Ji[1], Yazi Wang[1], HeeJoon Jung[2], Byungha Shin[1] (1. Korea Advanced Institute of Science and Technology (Korea), 2. Korea Research Institute of Standards and Science (Korea))

[Tu2-P42-26]

Additive-assisted hydrothermal growth enabling defect passivation and void remedy in antimony selenosulfide solar cells

*Yazi Wang[1], Seunghwan Ji[1], Hee Joon Jung[2], Byungha Shin[1] (1. Korea Advanced Institute of Science and Technology (KAIST) (Korea), 2. Korea Research Institute of Standards and Science (KRISS) (Korea))

[Tu2-P42-27]

Orientations and *J-V* characteristics of SnS homojunction solar cells fabricated by LPE

*Takayuki Miyai[1], Issei Suzuki[2], Masakatsu Hasegawa[1], Takahisa Omata[2], Sakiko Kawanishi[1] (1. Kyoto University (Japan), 2. Tohoku University (Japan))

[Tu2-P42-28]

Potential fluctuation at the band edge of Cu_2ZnSnS_4 thin film materials in solar cells structures investigated by photoluminescence measurements

*Soma Endo[1], Tomoki Harada[1], Tetsuo Ikari[1], Taketo Aihara[2], Hitoshi Tampo[3], Takehiko Nagai[3], Atsuhiko Fukuyama[1] (1. University of Miyazaki (Japan), 2. Japan Aerospace Exploration Agency (Japan), 3. Institute of Advanced Industrial Science and Technology (Japan))

[Tu2-P42-29]

Bandgap engineering of $Zn_{1-x}Sn_xO$ alloy buffer layer for Cu(In,Ga)Se_2 solar cell

*Cheuk Kai Gary Kwok[1], Genchi Inohana[1], Yuta Sato[1], Muhammad Monirul Islam[1], Takeaki Sakurai[1] (1. Faculty of Pure and Applied Sciences, University of Tsukuba, Ibaraki 305-8573, Japan (Japan))

[Tu2-P42-30]

The role of Ge incorporation in pure sulfide CZTS revealed by advanced micro-to-atom scale characterizations

*Jialin Cong[1], Jialiang Huang[1], Xiaojing Hao[1] (1. University of New South Wales (Australia))

[Tu2-P42-31]

Increase in oxygen composition *x* of MoO_x HTL in MoO_x/$BaSi_2$ heterostructures by introduction of a-Si:H interface layers for $BaSi_2$ solar cells

*Yuka Fukaya[1], Nurfauzi Abdillah[1], Kaoru Toko[1], Takashi Suemasu[1] (1. University of Tsukuba (Japan))

[Tu2-P42-32]

Ag and Ge synergy in molecular ink route for bandgap tunable kesterite solar cells with high efficiency

*Romain Scaffidi[1,2,3,4], Yuancai Gong[5], Alex Jiménez Arguijo[5], Guy Brammertz[1,2,3], Denis Flandre[4], Bart Vermang[1,2,3], Edgardo Saucedo[5] (1. UHasselt (Belgium), 2. imec (Belgium), 3. EnergyVille (Belgium), 4. UCLouvain (Belgium), 5. UPC (Spain))

[Tu2-P42-33]

Prediction of photovoltaic properties by photoluminescence measurement through Cu_2ZnSnS_4 solar cell

*Jaeeun Jeon[1], Takehiko Nagai[1], Yuya Ide[1,2], Hajime Shibata[1], Norio Terada[1,2], Hitoshi Tampo[1] (1. National Institute of Advanced Industrial Science and Technology (Japan), 2. Kagoshima University (Japan))

[Tu2-P42-34]

Investigating the multiple effects of Al_2O_3 interface passivation in CIGS solar cells

*Yukiko Kamikawa[1], Marco Nardone[2], Jiro Nishinaga[1], Shogo Ishizuka[1] (1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan), 2. Bowling Green State University (United States of America))

[Tu2-P42-35]

The substitution effects of Ag for Cu and Ga for In in Cu-poor phases $CuIn_3Se_5$ and $CuIn_5Se_8$ in the Cu_2Se-In_2Se_3 pseudo-binary system

*Taka Wada[1,2], Tomoya Ishida[1], Tsuyoshi Maeda[1], Yu Kawano[2], Takashi Minemoto[2] (1. Ryukoku University (Japan), 2. Ritsumeikan University (Japan))

[Tu2-P42-36]

Effect of O_2-to-Ar gas flow ratio on the properties of sputter-deposited MoO_x HTL and its application to $BaSi_2$ solar cells

*Koki Hayashi[1], Takumi Sato[1], Rui Du[1], Yoichiro Koda[2], Masami Mesuda[2], Kaoru Toko[1], Takashi Suemasu[1] (1. University of Tsukuba (Japan), 2. Tosoh Corporation (Japan))

[Tu2-P42-37]

Investigation of the heat treatment conditions of Ag_8SnS_6 thin films

*Kentaro Mori[1], Hideaki Araki[2], Yoji Akaki[1] (1. National Institute of Technology, Miyakonojo College (Japan), 2. National Institute of Technology, Nagaoka College (Japan))

[Tu2-P42-38]

Influence of pH on fluorine incorporation into hydrothermally-synthesized tin oxide nanoparticles for applications in transparent conductive films

*Pattama Apichai[1,2,3], Watcharapong Pudkon[4], Thanawat Kanlayapattamapong[4], Piyapond Makming[5], Kumaree Thongimboon[4], Theerapat Arpornrat[4], Duangmanee Wongratanaphisan[4], Atcharawon Gardchareon[4], Pipat Ruankham[4] (1. 1Ph.D. Program in Nanoscience and Nanotechnology (International Program/Interdisciplinary), Faculty of Science, Chiang Mai University, Chiang Mai (Thailand), 2. Materials Science Research Center, Faculty of Science, Chiang Mai University, Chiang Mai (Thailand), 3. Department of Physics, Faculty of Science, Lampang Rajabhat University, Lampang (Thailand), 4. Department of Physics and Materials Science, Faculty of Science, Chiang Mai University, Chiang Mai (Thailand), 5. School of Renewable Energy, Maejo University, San Sai District, Chiang Mai (Thailand))

[Tu2-P42-39]

Synthesis of h-BN film for solar cells by microwave surface wave plasma CVD method

Sudip Adhikari[1,2], Rucheng Zhu[2], *Masayoshi Umeno[2] (1. Chubu University (Japan), 2. C's Techno. Inc. (Japan))

[Tu2-P42-40]

Fabrication of Facile and Low-cost Single Source SnS_XSe_{1-X} Thin Film Solar Cells Via Vapor Transport Deposition

*Yong Tae Kim[1], Pravin S. Pawar[1], Jaeyeong Heo[1] (1. Chonnam National University (Korea))

[Tu2-P42-41]

Comprehensive improvement in two-step deposited SnSSe thin film solar cell: roll of alkali-assisted selenium diffusion

*Parag Rajendra Patil[1], Indu Sharma[1], Yong Tae Kim[1], Jaeyeong Heo[1] (1. Chonnam National University, South korea (Korea))

[Tu2-P42-42]

Over 20%-efficiency flexible CIGS solar cell on stainless steel substrate through diffusion barrier insertion

*Weimin Li[1,2], Lulu Chen[1,3], Xue Zheng[1,2], Xingchao Shao[1,2], Bowen Liang[1,3], Chunlei Yang[1,2] (1. Shenzhen Institute of Advanced Technology,Chinese Academy of Sciences (China), 2. University of Chinese Academy of Sciences (China), 3. Department of Nano Science and Technology Institute, University of Science and Technology of China (China))

[Tu2-P42-43]

Evaluation of $CdSnP_2/ZnSnP_2$ Hetero-junction by Low Energy Inverse Photoelectron Spectroscopy (LEIPS)

*Maru Irei[1], Hayato Miura[1], Isshin sumiyoshi[1], Yoshitaro Nose[1] (1. Kyoto University (Japan))

[Tu2-P42-44]

CdTe Device Comparison with Other Technologies

*James Sites Sites[1], Camden Kasik[1], Ishwor Khatri[1], Marko Jost[2], Marko Topic[2] (1. Colorado State University (United States of America), 2. University of Ljubljana (Slovenia))

[Tu2-P42-45]

Influence of Ag/(In+Ga) Atomic Ration on Properties of $AgInGaSe_2$ Solar Cells

*Xianfeng Zhang[1], Xianwang Zhou[1], Li Zhang[2] (1. Guangzhou College of Technology and Business (China), 2. University of Electronic Science and Technology of China, Zhongshan Institute (China))

[Tu2-P42-46]

Analysis of performance improvement of co-evaporated CIGS photovoltaic devices with RbF post-deposition treatments

*Chia-Hua Huang[1], Yu-Chen Lin[1] (1. National Dong Hwa University (Chinese Taipei))

[Tu2-P42-47]

Influence of Substrate Temperature on The Properties of Indium Zinc Oxide Transparent Electrode

Sub area CC-2: Artificial Intelligence in PV Development | Cross Cutting Areas：Sub area CC-2: Artificial Intelligence in PV Development

Tue. Nov 12, 2024 11:00 AM - 12:30 PM JST | Tue. Nov 12, 2024 2:00 AM - 3:30 AM UTC PS-13/Multipurpose Hall (1F)

[Tu2-Pc2] Sub area CC-2: Artificial Intelligence in PV Development

[Tu2-Pc2-01]

Numerical simulation and performance evaluation of the Sb_2Se_3 solar cell with N_iO_x as hole transport layer

Chung-Kuan Lai[1], *Yu-Jen Hung[1], Yi-Cheng Lin[1] (1. National Changhua University of Education (Chinese Taipei))

[Tu2-Pc2-02]

Non-adiabatic Molecular Dynamics Calculations Combined with Time Series Machine Learning Methods for Analysis of Intermediate Level Carrier Dynamics in Er-doped GaAs

*Yuya Makino[1], Yusuke Oteki[2], Yoshitaka Okada[2], Tomah Sogabe[1] (1. The University of Electro-Communications (Japan), 2. RCAST, The University of Tokyo (Japan))

[Tu2-Pc2-03]

Machine learning-assisted thermal evaporation for $BaSi_2$ absorber films

*Kosuke O. Hara[1], Ryuto Ueda[1], Takaharu Nakanishi[1], Junji Yamanaka[1], Keisuke Arimoto[1] (1. University of Yamanashi (Japan))

[Tu2-Pc2-04]

Bayesian optimization of deposition condition of Cat-CVD n-a-Si:H film

Ryota Ohashi[1], *Kentaro Kutsukake[2], Huynh Thi Cam Tu[1], Keisuke Ohdaira[1] (1. Japan Advanced Institute of Science and Technology (Japan), 2. Nagoya University (Japan))

[Tu2-Pc2-05]

Quick analysis of X-ray diffraction patterns through machine learning

*Kentaro Kutsukake[1], Kota Matsui[1], Ichiro Takeuchi[1], Takashi Segi[2], Takuo Sasaki[3], Seiji Fujikawa[3], Masamitu Takahasi[3] (1. Nagoya University (Japan), 2. KOBELCO RESEARCH INSTITUTE, INC. (Japan), 3. National Institutes for Quantum Science and Technology (Japan))

[Tu2-Pc2-06]

Merging machine learning sky imaging methods with the two-state model in photovoltaic power nowcasting

*Sergiu-Mihai Hategan[1,2], Marius Paulescu[2] (1. Institute for Advanced Environmental Research, West University of Timisoara (Romania), 2. Faculty of Physics, West University of Timisoara (Romania))

Sub area 3-2: Cells and Modules | Area3: Wafer-based Silicon Photovoltaics：Sub area 3-2: Cells and Modules

Tue. Nov 12, 2024 2:00 PM - 3:30 PM JST | Tue. Nov 12, 2024 5:00 AM - 6:30 AM UTC PS-11/Multipurpose Hall (1F)

[Tu3-P32] Sub area 3-2: Cells and Modules

[Tu3-P32-01]

Damp heat stability of Cat-CVD Si nitride films deposited at a high deposition rate

*Keisuke Ohdaira[1], Huynh Thi Cam Tu[1] (1. Japan Advanced Institute of Science and Technology (Japan))

[Tu3-P32-02]

Evaluation of temperature dependent stress around electrodes in crystalline silicon solar cells by Raman spectroscopy

*Koki Hasebe[1], Ryo Yokogawa[1,4], Kyotaro Nakamura[2], Yoshio Ohshita[2], Noboru Yamada[3], Atsushi Ogura[1,4] (1. Meiji university (Japan), 2. Toyota Technological Institute (Japan), 3. Nagaoka University of Technology (Japan), 4. Meiji Renewable Energy Laboratory, Meiji University (Japan))

[Tu3-P32-03]

Precise quantitative evaluation of series resistance mapping of crystalline solar cells in electroluminescence method

*Sakuya Yamamoto[1], Itaru Raifuku[1], Yasuaki Ishikawa[1] (1. Aoyama Gakuin University (Japan))

[Tu3-P32-04]

A Comparison of Circuit Models for Simulating and Evaluating the Current-Voltage Characteristics of PERT N-Type Bifacial Solar Cells

*Phurachaya Wiratsiri[1], Jutturit Thongpron[1] (1. Faculty of Engineering Rajamangala University of Technology Lanna (Thailand))

[Tu3-P32-05]

Singlet fission enhanced silicon solar cells: silicon surface passivation vs triplet transfer

*Jingnan (Taffy) Tong[1], Shona McNab[1], Zhangfan Qiao[1], Alex J. Baldacchino[1], Ben P. Carwithen[1], Matthew W. Brett[1], Alvin Mo[1], Yu (Victor) Zhang[1], Phoebe M. Pearce[1], Yajie (Jessica) Jiang[1], Alison M. Ciesla[1], Jon Beves[1], Bram Hoex[1], Michael Nielsen[1], Dane McCamey[1], Timothy Schmidt[1], Murad Tayebjee[1], N. J. Ekins-Daukes [1] (1. UNSW (Australia))

[Tu3-P32-06]

The layered structure concept for n-MoS_2/p-Si(c) heterojunction solar cells using TCAD Sentaurus

*ANTERDIPAN SINGH[1], PRATIMA AGARWAL[1] (1. Indian Institute of Technology Guwahati (India))

[Tu3-P32-07]

Simulation studies on n-WS_2/p-Si(c) Heterojunction Solar Cells using TCAD sentaurus

*PRATIMA AGARWAL[1], ANTERDIPAN SINGH[1], BISWAJIT DAS[1] (1. Indian Institute of Technology Guwahati (India))

[Tu3-P32-08]

Improvement in performance of dopant-free V_2O_x/c-Si(n) solar cell by the application of UV-Ozone treatment

*Rahul Rahul[1], Juhi Kumari[2], Anterdipan Singh[1], Pratima Agarwal[1,2] (1. Department of Physics, Indian Institute of Technology Guwahati (India), 2. School of Energy Science and Engineering, Indian Institute of Technology Guwahati (India))

[Tu3-P32-09]

Optimized Division-Conditions of Shinlged Heterojuntion Solar Cells by InfraRed Laser Irradiation

*EunBi Lee Lee[1,2], Min-Joon Park Park[1], Sungmin Yoon Yoon[1], Eunae Jo Jo[1], Kiseok Jeon Jeon[1], Minseob Kim Kim[1], Jinho Shin Shin[1], Yujin Kim Kim[1], Chaehwan Jeong Jeong [1], Cheol Yeong Park Park[1] (1. Korea Institute of Industrial Technology (Korea), 2. Yonsei University (Korea))

[Tu3-P32-10]

Optimization and Improvement electrical and optical properties to enhance silicon heterojunction solar cell by ITO/Al2O3 double layer anti-reflective coating.

*Seokjin Jang[1], Muhammad Quddamah Khokhar[2], Sangheon Park[3], Junsin Yi[4] (1. Sungkyunkwan university (Korea), 2. Sungkyunkwan university (Korea), 3. Sungkyunkwan university (Korea), 4. Sungkyunkwan university (Korea))

[Tu3-P32-12]

Silicon solar cells using n-type tin oxide as a hole selective layer

*Tu Huynh Thi Cam[1], Keisuke Ohdaira[1] (1. Japan Advanced Institute of Science and Technology (Japan))

[Tu3-P32-13]

Silicon heterojunction solar cell with undoped tin oxide transparent electrode

*Cao Yu[1,2], Qiaojiao Zou[3], Qi Wang[2], Gangqiang Dong[2], Xiaodan Zhang[3], Xiaohong Zhang[1] (1. Soochow University (China), 2. Suzhou Maxwell Technologies Co., Ltd (China), 3. Nankai University (China))

[Tu3-P32-14]

Lifetime Enhancement of Nano-Crystalline SHJ Cells Using Heat and Light Treatments

*Maysa Sarsour[1], Fiacre Rougieux[1], Alison Ciesla[1], Chukwuka Madumelu[1], Martin Green[1], NJ Ekins-Daukes[1], Jessica Yajie Jiang[1] (1. School of Photovoltaic and Renewable Energy, UNSW (Australia))

[Tu3-P32-15]

High-performance transparent electron-selective contact for crystalline silicon solar cells

Dacheng Xu[1], *Kun Gao[1], Xinbo Yang[1] (1. College of Energy, Soochow University (China))

[Tu3-P32-16]

Passivation quality and contact resistance of tunnel nitride passivated contacts with various silicon nitride compositions

*Yuhi Ito[1], Tu Huynh Thi Cam[1], Keisuke Ohdaira[1] (1. Japan advanced institute of science and technology (Japan))

[Tu3-P32-17]

Formation of Etching Barrier by Using SiO_xN_y as Tunnel Layer in TOPCon Structure

*Mingun Kim[1], Hoyoung Song[1], Donghwan Kim[1], Hae-Seok Lee[3], Yoonmook Kang[3], Youngho Choe[2] (1. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 2. Institute of Energy Technology, Korea University, Republic of Korea (Korea), 3.

Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea))

[Tu3-P32-18]

Aluminum Composition Effects in Ag/Al Paste on Local p+ Emitter Formation in p-Type Silicon Rear Junction TOPCon Solar Cells

*Yejin Gu[1], Yerin Lee[1], Dongjin Choi[3], Hoyoung Song[1], MyeongSeob Sim[1], Yoonmook Kang[2], Youngho Choe[3], Donghwan Kim[1], Hae-Seok Lee[2] (1. Department of Materials Science and Engineering, Korea University (Korea), 2. Graduate School of Energy and Environment (KU-KIST Green School), Korea University (Korea), 3. Institute of Energy Technology, Korea University (Korea))

[Tu3-P32-19]

The implement of silver-coated copper paste on TOPCon solar cells

*CHIH JENG HUANG[1], Chun-Ping Lin[1], Han-Chen Chang[1], Sung-Yu Chen[1] (1. Green Energy and Environment Research Laboratories, Industrial Technology Research Institute, Chinese Taipei (Chinese Taipei))

[Tu3-P32-20]

Simulation of TOPCon based back contact(TBC) solar cell using SILVACO VICTORY TCAD

*Ji-Seong Hwang[1], Youngho Choe[2], Yoonmook Kang[3], Hae-Seok Lee[3], Donghwan Kim[1] (1. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 2. Institute of Energy Technology, Korea University (Korea), 3. Graduate School of Energy and Environment (KU-KIST Green School), Korea University (Korea))

[Tu3-P32-21]

Doping characteristics of boron-doped polysilicon in TOPCon solarcell

*SuBeom Hong[1], Dongjin Choi[2], Huiyeon Lee[2], Youngho Choe[3], Hae-seok Lee[1], Donghwan Kim[2], Yoonmook Kang[1] (1. Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea), 2. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 3. Institute of Energy Technology, Korea University, Republic of Korea (Korea))

[Tu3-P32-22]

Enhancing thermal stability of SiO_x/poly-Si passivated contacts: Investigating the impact of firing peak temperature

*Yerin Lee[1], Dongjin Choi[1], Hoyoung Song[1], Youngho Choe[2], Yoonmook Kang[3], Hae-Seok Lee[3], Donghwan Kim[1] (1. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 2. Institute of Energy Technology, Korea University, Republic of Korea (Korea), 3. Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea))

[Tu3-P32-23]

Bending tests and stress simulation of TOPCon solar cells cut by TLS technology: Advantages for curved PV modules

*Shunto Honda[1], Tomoya Tanimoto[1], Benjamin Lee[2], Steffen Geißler[2], Daisuke Sato[1], Noboru Yamada[1] (1. Nagaoka University of Technology (Japan), 2. Hanwha Q CELLS GmbH (Germany))

[Tu3-P32-25]

Degradation of Silicon Solar Modules Induced by Light Soaking at Elevated Temperatures: A Comparative Study of Pre-Hydrogenation and Post-Hydrogenation

*MyeongSeob Sim[1], Dongjin Choi[2], Youngho Choe[2], Yoonmook Kang[3], Donghwan Kim[1], Hae-Seok Lee[3] (1. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 2. Institute of Energy Technology, Korea University, Republic of Korea (Korea), 3. Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea))

[Tu3-P32-26]

Tolerance to potential-induced degradation for crystalline Si photovoltaic modules with Ag nanowires deposited on cell/encapsulant interface

*Asahi Yonemoto[1], Yiming Qin[1], Dhamrin Marwan[2], Keisuse Ohdaira[3], Kazuhiro Gotoh[1,4], Atsushi Masuda[1,4] (1. Grad. School Sci. Tech., Niigata University (Japan), 2. Osaka University (Japan), 3. JAIST (Japan), 4. IRCNT, Niigata University (Japan))

[Tu3-P32-27]

Mitigation of potential-induced degradation phenomena by Li element in crystalline Si photovoltaic modules

*Yiming QIN[1], Asahi Yonemoto[1], Dhamrin Marwan[2], Keisuke Ohdaira[3], Kazuhiro Gotoh[1,4], Atsushi Masuda[1,4] (1. Niigata University (Japan), 2. Osaka University (Japan), 3. JAIST (Japan), 4. IRCNT, Niigata University (Japan))

[Tu3-P32-28]

Impact of high impulse voltage on insulation of crystalline silicon photovoltaic modules

*ZEBE Thomas D'Aquin[1], Masao Isomura[1], Hanae Yamazaki[2], Atsushi Masuda[2], Tetsuya Kaneko[1] (1. Tokai University (Japan), 2. Niigata University (Japan))

[Tu3-P32-29]

Fluoropolymer layer for Snail trail prevention in c-Si PV modules

*Jaehwan Ko[1], Chungil Kim[1], Suwoon Lee[1], Jiwon Song[1], Hyung-Jun Song[1] (1. Seoul National University of Science and Technology (Korea))

[Tu3-P32-30]

Development of lightweight PV module with an aluminum composite back sheet for BIPV applications

*nopphadol sitthiphol[1] (1. National Science and Technology Development Agency (NSTDA) (Thailand))

[Tu3-P32-31]

Investigation of glassless crystalline silicon solar modules with PET film cover for high reliability in high temperatures and humidity conditions

*Tomihisa Tachibana[1], Katsuhiko Shirasawa[1], Katsuto Tanahashi[1] (1. AIST (Japan))

[Tu3-P32-32]

Highly designed photovoltaic modules using black back sheet with IR reflection

*Ryoya Okui[1], Atsushi Nakahara[2], Kazuhiro Gotoh[1,3], Atsushi Masuda[1,3] (1. Grad. School Sci. Tech., Niigata University (Japan), 2. Dai Nippon Printing (Japan), 3. IRCNT, Niigata University (Japan))

[Tu3-P32-33]

Improvement of heat dissipation of crystalline silicon-based-solar-cell module by MgO particle mixed silicone layer

*Yuta Ninomiya[1], Eiko Shimokata[1], Keisuke Ohdaira[2], Atsushi Masuda[3], Yasushi Sobajima[1] (1. Gifu University (Japan), 2. JAIST (Japan), 3. Niigata University (Japan))

[Tu3-P32-34]

Development of easy-to-disassemble solar PV module for environmentally friendly end-of-life handling

*Amornrat Limmanee[1], Suttinan Jaroensathainchok[1], Channarong Piromjit[1], Sampan Sivavorapan[1], Malai Wongkphabutr[1], Prathum Kungsok[1], Taweewat Krajangsang[1] (1. ENTEC, National Science and Technology Development Agency (Thailand))

[Tu3-P32-35]

Investigation of reflectance reduction structure using RCWA method for encapsulant-less Si photovoltaic module

*Shota Nakai[1], Itaru Raifuku[1], Yasuaki Ishikawa[1] (1. Aoyama Gakuin University (Japan))

[Tu3-P32-36]

Mechanical strength evaluation of curved crystalline silicon photovoltaic moduleswithout encapsulant and cover glass

*Mitsunori Nagahara[1], Tu Huynh Thi Cam[1], Keisuke Ohdaira[1] (1. Japan Advanced Institute of Science and Technology (Japan))

[Tu3-P32-37]

Adding heat dissipation function to c-Si-based solar cell modules without encapsulants using MgO/silicone layer

*Kouzen Wakazono[1], Shinya Tsukamoto[1], Keisuke Ohdaira[2], Yasushi Sobajima[1] (1. Gifu university (Japan), 2. JAIST (Japan))

[Tu3-P32-38]

Noncontact and high throughput estimation for the averaged voltage of a target cell in a photovoltaic module by clamping a single wire

*Yasuyuki Kobayashi[1], Muhammad Syahir Bin Abdul Ramad[1], Hao Jiang[1] (1. Teikyo University (Japan))

[Tu3-P32-39]

Discrepancies in factory-labeled and measured STC specifications of imported photovoltaic modules in Yemen: implications for trade practices and quality assurance

*Lamees Ahmed AlQahm[1], Marwan Dhamrin (1. Yemen Standardization, Metrology and Quality Control Organization (Yemen))

[Tu3-P32-40]

Impact of data granularity on the assessment of photovoltaic module performance

*Andreea Sabadus[1], Marius Paulescu[2] (1. Institute for Advanced Environmental Research, West University of Timisoara (Romania), 2. Faculty of Physics, West University of Timisoara (Romania))

[Tu3-P32-42]

Degradation analysis of 38-year-old PV modules under the weather conditions of Sana'a - Yemen

*Mohammed Dahesh[1,2], Mohammed Al-Matwakel[2], Marwan Dhamrin[3,4], Kazuma Ito[5], Atsushi Masuda[5] (1. Yemen Standardization, Metrology and Quality Control Organization (Yemen), 2. Physics Department, Faculty of Science, Sana'a University (Yemen), 3. Graduate School of Engineering, Osaka University 1-1 Yamadaoka, Suita 565-0871 (Japan), 4. Toyo Aluminium K.K, 3-6-8 Kutarocho, Chuo-ku, Osaka 541-0056 (Japan), 5. Graduate School of Science and Technology, Niigata University (Japan))

[Tu3-P32-43]

Examining Two Varieties of Bifacial Solar modules for Vertical Photovoltaics Systems Across Different Orientations

*Ji Woo Sohn[1], Solhee Lee[1], Hongjun Jang[2], SuBeom Hong[2], Mingun Kim[1], Sungho Hwang[2], Youngho Choe[3], Hae-Seok Lee[2], Donghwan Kim[1], Yoonmook Kang[2] (1. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 2. Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea), 3. Institute of Energy Technology, Korea University, Republic of Korea (Korea))

Sub area CC-1: Perovskite Tandems | Cross Cutting Areas：Sub area CC-1: Perovskite Tandems

Tue. Nov 12, 2024 2:00 PM - 3:30 PM JST | Tue. Nov 12, 2024 5:00 AM - 6:30 AM UTC PS-12/Multipurpose Hall (1F)

[Tu3-Pc1] Sub area CC-1: Perovskite Tandems

[Tu3-Pc1-01]

Fabrication of perovskite/silicon tandem photovoltaic modules using silicone encapsulants

*Hanae Yamazaki[1], Hiromu Homma[1], Takeshi Gotanda[2,3], Hiroto Ohwada[4], Kazuhiro Gotoh[1,5], Atsushi Masuda[1,5] (1. Fac. Eng., Niigata Univ. (Japan), 2. Toshiba Energy Systems & Solutions (Japan), 3. Toshiba (Japan), 4. Shin-Etsu Chemical (Japan), 5. IRCNT, Niigata Univ. (Japan))

[Tu3-Pc1-02]

Fine tuning of parasitic absorption for perovskite/silicon tandem solar cells with ultra-thin C60

*Gaosheng Huang[1,2], Nan Sun[1,3], Qing Yang[1,2], Benjamin Klingebiel[1], Andreas Lambertz[1], Karsten Bittkau[1], Thomas Kirchartz[1,3], Uwe Rau[1,2], Kaining Ding[1] (1. Forschungszentrum Jülich (Germany), 2. RWTH Aachen University (Germany), 3. University of Duisburg-Essen (Germany))

[Tu3-Pc1-03]

The impact of nanotexture on monolithic perovskite/silicon tandem solar cells

*Nan Sun[1,2], Gaosheng Huang[1,3], Qing Yang[1,3], Binbin Xu[1,3], Andreas Lambertz[1], Karsten Bittkau[1], Thomas Kirchartz[1,2], Kaining Ding[1] (1. IEK-5 Photovoltaics, Forschungszentrum Jülich GmbH (Germany), 2. Faculty of Engineering and CENIDE, University of Duisburg-Essen (Germany), 3. Jülich-Aachen Research Alliance (JARA-Energy) and Faculty of Electrical Engineering and Information Technology, RWTH Aachen University (Germany))

[Tu3-Pc1-04]

Improvement of nano-texture uniformity formed on crystalline silicon surface by anisotropic alkaline etching for perovskite/silicon tandem solar cells

*Hiroto Yamaguchi[1], Shohei Fukaya[1], Yasuyoshi Kurokawa[1,2], Noritaka Usami[1,2,3] (1. Graduate School of Engineering, Nagoya University (Japan), 2. Institutes of Innovation for Future Society, Nagoya University (Japan), 3. Institute of Materials and Systems for Sustainability, Nagoya University (Japan))

[Tu3-Pc1-05]

Optimizing Pyramid Size and Density in Random Texture Silicon for the Perovskite Films: Advancing High-efficiency Tandem Cells

*Jaewon Lee[1], Junyoung Jeong[1], Dowon Pyun[1], Hoyoung Song[1], Seok-Hyun Jeong[1], Haejung Lee[1], HongJun Jang[1], Sujin Cho[1], Seungtae Lee[1], Myeongji Woo[1], SuBeom Hong[1], Youngmin Kim[1], MyeongSeob Sim[1], Youngho Choe[1], Hae-Seok Lee[1], Donghwan Kim[1], Yoonmook Kang[1] (1. Korea (Korea))

[Tu3-Pc1-06]

Numerical Optimization of 2-Terminal Perovskite/Silicon Tandem Devices with Various Bottom Cell Structures

*Hoyoung Song[1], Sang-Won Lee[2], Youngho Choe[3], Yoonmook Kang[4], Hae-Seok Lee[4], Donghwan Kim[1] (1. Department of Materials Science and Engineering, Korea University, Republic of Korea (Korea), 2. Department of Chemical Engineering, Stanford University, California, USA (United States of America), 3. Institute of Energy Technology, Korea University, Republic of Korea

(Korea), 4. Graduate School of Energy and Environment (KU-KIST Green School), Korea University, Republic of Korea (Korea))

[Tu3-Pc1-07]

Nickel silicide as a recombination layer for Perovskite/TOPCon tandem solar cells

*Sujin Cho[1], Dowon Pyun[1], Yerin Lee[1], Jae-Keun Hwang[1], Seok Hyun Jeong[1], Solhee Lee[1], Wonkyu Lee[1], Ji-Seong Hwang[1], Kyunghwan Kim[1], Youngmin Kim[2], Sang Won Lee[2], Donghwan Kim[1], Youngho Choe[3], Yoonmook Kang[2], Hae-Seok Lee[2] (1. Department of Materials Science and Engineering, Korea University (Korea), 2. Graduate School of Energy and Environment (KU-KIST Green School), Korea University (Korea), 3. Institute of Energy Technology, Korea University (Korea))

[Tu3-Pc1-08]

Recombination Layer for Perovskite&Silicon Tandem Solar Cells Using Nano-Ag Crystallite

*Seung Hyeon Oh[1], Hae-Seok Lee[1], Yoonmook Kang[1], Donghwan Kim[3], Youngho Choe[2] (1. Graduate School of Energy and Environment (KU-KIST green School), Korea University (Korea), 2. Institute for Energy Technology, Korea University, Anam-ro 145, Seongbuk-gu, Seoul 02841, Republic of Korea (Korea), 3. Department of Materials Science and Engineering, Korea University, Anam-ro 145, Seongbuk-gu, Seoul 02841, Republic of Korea (Korea))

[Tu3-Pc1-09]

Hybrid evaporation-solution processes for perovskite single-junction and tandem solar cells

*Abduheber Mirzehmet[1,3], Calum McDonald[1,3], Vladimir Svrcek[1,3], Hitoshi Sai[1,3], Takurou Murakami[2,3], Takuya Matsui[1,3] (1. Renewable Energy Research Center (Japan), 2. Global Zero Emission Research Center (Japan), 3. AIST (Japan))

[Tu3-Pc1-10]

Optoelectrical design of thin Cr/Au electrode for 4-terminal perovskite/silicon tandem solar cells

*Yusuke Kobata[1], Dong Chung NGUYEN[1,2], Itaru Raifuku[1], Yasuaki Ishikawa[1] (1. Aoyama Gakuin university (Japan), 2. Institute of Materials Science, Vietnam Academy of Sciences and Technology (Viet Nam))

[Tu3-Pc1-11]

Large area four-terminal perovskite silicon tandem solar cells with face-on oriented tripodal triazatruxene hole-collecting monolayer

*Noboru Ohashi[1], Minh Anh Truong[1], Tomoya Nakamura[1], Richard Murdey[1], Kyotaro Nakamura[2], Yoshio Ohshita[2], Tappei Nishihara[3,4], Hyunju Lee[4], Atsushi Ogura[4], Noritaka Usami[5], Kazuhiro Gotoh[5,6], Atsushi Masuda[6], Yoshihiko Kanemitsu[1], Atsushi Wakamiya[1] (1. Kyoto University (Japan), 2. Toyota Technological Institute (Japan), 3. Japan Synchrotron Radiation Research Institute (Japan), 4. Meiji University (Japan), 5. Nagoya University (Japan), 6. Niigata University (Japan))

[Tu3-Pc1-12]

Hybrid PERC/TOPCon Bottom Cell Enabling Ag-free and In-free Design for Perovskite-Si Tandem Solar Cells

Hisham Nasser[1], Gokhan Altiner[1], Yigit Mert Kaplan[1], Jons Bolding[2], Floor Souren[2], Hindrik de Vries[2], Eni Muka[1], Berkay Uygun[1], Ayse Can[1], *Rasit Turan[1] (1. ODTÜ-GÜNAM, Middle East Technical University, 06800, Ankara (Turkey), 2. SALD B.V., Luchthavenweg 10, 5657EB, Eindhoven (Netherlands))

[Tu3-Pc1-13]

Perovskite/silicon tandem solar cells over 27% efficiency with optimized NiOx hole transport layer

Yubei Han[1], Rujie Zhang[1], Jingyu Chu[1], Liping Zhang[2], Zhengxin Liu[2], *Yiwen Zhang[1] (1. Shanghai Normal University (China), 2. Shanghai Institute of Microsystem and Information Technology (China))

[Tu3-Pc1-14]

Study of semi-transparent normal-structured perovskite solar cells for flexible perovskite/silicon tandem solar cell applications

*Daiki Haruta[1], Kimihiko Saito[1], Ryousuke Ishikawa[1] (1. Tokyo City University (Japan))

[Tu3-Pc1-15]

Engineering tungsten doped indium oxide (IWO) thin films to fabricate higher-performance silicon heterojunction bottom solar cells for the perovskite/silicon tandem solar cell application

*Hyunju Lee[1], Tappei Nishihara[2], Shiyu Zhang[1], Yoshio Ohshita[3], Atsushi Ogura[1] (1. Meiji University (Japan), 2. Japan Synchrotron Radiation Research Institute (Japan), 3. Toyota Technological Institute (Japan))

[Tu3-Pc1-16]

Highly efficient and durable all-perovskite triple-junction solar modules: voltage matching vs. current matching

*Yasuhiko Takeda[1], Ken-ichi Yamanaka[1], Naohiko Kato[1] (1. Toyota Central R&D Labs., Inc. (Japan))

[Tu3-Pc1-17]

Unveiling the potential of $Cs_2AgBiBr_6/CsSn_{0.5}Ge_{0.5}I_3$-based Tandem Solar Cell

Prateek Singh Tomar[1], *Deepak Joshi[1], Vivek Garg[1] (1. Sardar Vallabhbhai National Institute of Technology (SVNIT, Surat) (India))

[Tu3-Pc1-18]

Luminescent coupling in perovskite/GaInNAs tandem solar cell: numerical simulation and experimental demonstration

*Dinesh Bahadur Malla[1] (1. University of Electro-Communications (Japan))

[Tu3-Pc1-19]

Improvement of semi-transparent perovskite solar cells efficiency by preventing ITO sputtering damage

*Shohei Ryo[1], Hirotaka Sano[1], Ryo Sato[1], Xiao Liu[1], Yasuhiro Okada[1], Hiroaki Takahashi[1], Yasuhiro Matsubara[1] (1. Kyocera Corporation (Japan))

Sub area CC-3: Solar to X; Sciences, Materials and Devices | Cross Cutting Areas：Sub area CC-3: Solar to X; Sciences, Materials and Devices

Tue. Nov 12, 2024 2:00 PM - 3:30 PM JST | Tue. Nov 12, 2024 5:00 AM - 6:30 AM UTC PS-13/Multipurpose Hall (1F)

[Tu3-Pc3] Sub area CC-3: Solar to X (3); Sciences, Materials and Devices

[Tu3-Pc3-01]

Exploring Enhanced Carbon Capture: Synthesis, Characterization, and Sorption Studies of Modified UiO-66 Metal-Organic Frameworks Decorated with Plasmonic Au nanoparticles.

Alaa Elsafi Ahmed[1], Zeineb Theihmed[1], Palani Elumalai[1], Alessandro Sinopoli[1], *BRAHIM AISSA[1], Abdulkarem I. Amhamed[1] (1. Qatar Environment and Energy Research Institute (Qatar))

[Tu3-Pc3-02]

Photoelectrochemical salt-water splitting using silver and copper ions co-doping into metal organic framework photoelectrodes

*Kong-Wei Cheng[1], Shu-Hui Lin[1], Ya-Ting Syu[1] (1. Chang Gung University (Chinese Taipei))

[Tu3-Pc3-03]

Improvement of catalytic performances for air-cathode in the Zn-air batteries using nickel-cobalt selenide composite electrocatalysts

*YI-CHI LIAO[1] (1. CHANG-GENG University, Chinese Taipei (Chinese Taipei))

[Tu3-Pc3-04]

Photoelectrochemical salt-water splitting using copper doped zinc-S based metal organic framework.

*Shu-Hui Lin[1] (1. Chang Gung University (Chinese Taipei))

[Tu3-Pc3-05]

Eco-friendly Photocatalytic Removal of Synthetic Dye Wastewater using Spent Coffee Grounds (SCGs)-derived Reduced Graphene Oxide (rGO)

*Phouvnieth Phearum[1], Patiya Kemacheevakul[1,2,3], Surawut Chuangchote[2,4], Watanabe Tomohide[5], Kubota Keiichi[5] (1. Department of Environmental Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (Thailand), 2. Research Center of Advanced Materials for Energy and Environmental Technology (MEET), King Mongkut's University of Technology Thonburi (KMUTT) (Thailand), 3. Center of Excellence on Hazardous Substance Management (HSM) (Thailand), 4. Department of Tool and Materials Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (KMUTT) (Thailand), 5. Division of Environmental Engineering Science, Gunma University (Japan))

[Tu3-Pc3-06]

Improvement of Physical Properties of Graphitic Carbon Nitride Photocatalysts for Conversion of Glucose to High-Value Chemicals

*Atita Tapo[1,2], Surawut Chuangchote[1,2] (1. Department of Tool and Materials Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (KMUTT) (Thailand), 2. Research Center of Advanced Materials for Energy and Environmental Technology (MEET), King Mongkut's University of Technology Thonburi (KMUTT) (Thailand))

[Tu3-Pc3-07]

Titanium-Based Metal-Organic Framework Photocatalysts for Photodegradation of Lignin Model to Produce Value-Added Chemicals

*Nattida Srisasiwimon[1,2,3], Surawut Chuangchote [3,4] (1. The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology Thonburi, 126 Prachauthit Rd., Bangmod, Thungkru, Bangkok 10140. (Thailand), 2. Center for Energy Technology and Environment, Ministry of Education, 126 Prachauthit Rd., Bangmod, Thungkru, Bangkok 10140. (Thailand), 3. Research Center of Advanced Materials for Energy and Environmental Technology (MEET), King Mongkut's University of Technology Thonburi (KMUTT), 126 Prachauthit Rd., Bangmod, Thungkru, Bangkok, 10140. (Thailand), 4. Department of Tool and Materials Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (KMUTT), 126 Prachauthit Rd., Bangmod, Thungkru, Bangkok, 10140. (Thailand))

[Tu3-Pc3-08]

Effect for CO_2 reduction of zero-gap reactor by adding formic acid to low concentration alkali metal bicarbonate anolyte.

*Kei Morishita[1], Takeharu Murakami[1], Takeshi Matsumoto[1], Kazuki koike[1,2], Katsushi Fujii[1], Takayo Ogawa[1], Satoshi Wada[1] (1. RIKEN (Japan), 2. Meiji University, Japan (Japan))

[Tu3-Pc3-09]

Effect of conditioning process for membrane and IrO_2 oxygen evolution catalyst in polymer electrolyte electrochemical cell

*Itsuka Akita[1], Katsushi Fujii[1,2], Takayo Ogawa[2], Satoshi Wada[2], Atsushi Ogura[1,2,3] (1. Meiji University (Japan), 2. RIKEN RAP (Japan), 3. MREL (Japan))

[Tu3-Pc3-10]

Change in reduction products during long-time operation of electrochemical CO_2 reduction with Cu electrode

*Kazuki Koike[1,2], Takeharu Murakami[2], Kentaro Inoue[1], Takayo Ogawa[2], Katsushi Fujii[2], Satoshi Wada[2], Atsushi Ogura[1,3] (1. Meiji Univ. (Japan), 2. RIKEN RAP (Japan), 3. MREL (Japan))

[Tu3-Pc3-11]

Evaluation of water transportation in anion exchange membranes used for electrochemical CO_2 reduction.

*Kentaro Inoue[1], Kazuki Koike[1,2], Takeharu Murakami[2], Kei Morishita[2], Takayo Ogawa[2], Katsushi Fujii[2], Satoshi Wada[2], Atsushi Ogura[1,3] (1. Meiji University (Japan), 2. RIKEN RAP (Japan), 3. MREL (Japan))

[Tu3-Pc3-12]

Intensity-modulated photocurrent spectroscopy to unravel the limiting processes in nanostructured photoelectrodes for water photooxidation

Juan Carlos Expósito-Gálvez[1], Francisco J. Peón-Díaz[2], *Paul Pistor[1], Gerko Oskam[1] (1. CNATS-UPO (Spain), 2. Universidad de Valparaíso (Chile))

[Tu3-Pc3-13]

Theoretical studies on the reaction mechanism of ammonia synthesis by lithium nitride phase

*Chinami Okamura[1], Azusa Muraoka[1], Koichi Yamashita[2] (1. Japan Women's University (Japan), 2. Yokohama City University (Japan))

[Tu3-Pc3-14]

Biomass-Derived Carbon-doped Strontium Titanate Perovskite Photocatalysts and Their Photocatalytic Glucose Conversions to Value-Added Chemicals

*Ahmad Said[1,2], Patiya Kemacheevakul[2,3,4], Verawat Champreda[5], Surawut Chuangchote[2,6] (1. The Joint Graduate School of Energy and Environment, King Mongkut's University of Technology

Thonburi (Thailand), 2. Research Center of Advanced Materials for Energy and Environmental Technology (MEET), King Mongkut's University of Technology Thonburi (Thailand), 3. Department of Environmental Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (Thailand), 4. Center of Excellence on Hazardous Substance Management (HSM) (Thailand), 5. National Science and Technology Development Agency (NSTDA) (Thailand), 6. Department of Tool and Materials Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (Thailand))

[Tu3-Pc3-15]

An off-grid solar-powered carbon capture system by integration of microalgae and seashells

Yemin Thanh[1], Apatcha Satanyothin[1], Neerapat Kanbuala[1], *Methawee Nukunudompanich[1] (1. King Mongkut's Institute of Technology Ladkrabang (Thailand))

[Tu3-Pc3-16]

Effect of center atom variations in tetraalkyl-type ionic liquids on the lithium-mediated electrochemical ammonia production

*Jinwoo Chu[1], Sungbin Yang[1], Byungha Shin[1] (1. Korea Advanced Institute of Science and Technology (Korea))

[Tu3-Pc3-17]

Charge carrier recombination in TiO_2 and $SrTiO_3$ single crystals: impact of CoO_x cocatalyst loading

*Endong Zhang[1], Toru Takayoshi[1], Zhenhua Pan[2], Masashi Kato[1] (1. Nagoya Institute of Technology (Japan), 2. University of Hyogo (Japan))

[Tu3-Pc3-18]

BiVO4 photoanode optimization using sputtering method

*youseong Park[1], jin hyeok Kim[1] (1. Chonnam National University)

[Tu3-Pc3-19]

Sonochemical conversion of alcohols to hydrogen as a complementary path for solar-to-hydrogen energy conversion

*Tomonori Kawano[1,2], Tatsuya Hasegawa[1], Katsunori Yanagawa[1], Katsushi Fujii[2], Satoshi Wada[2] (1. The University of Kitakyushu, 2. RIKEN Center for Advanced Photonics)

Sub area 5-2: Emerging Materials and New Concepts | Area5 : Perovskite and Emerging Photovoltaics : Sub area 5-2: Emerging Materials and New Concepts

Tue. Nov 12, 2024 4:00 PM - 5:30 PM JST | Tue. Nov 12, 2024 7:00 AM - 8:30 AM UTC PS-13/Multipurpose Hall (1F)

[Tu4-P52] Sub area 5-2: Emerging Materials and New Concepts

[Tu4-P52-01]

Luminescent solar concentrator photovoltaics made of Zn-based semiconductor-nanoparticle-dispersed 3-aminopropyltrimethoxysilane sol-gel glass films

Keigo Awai[1], Yuki Idutsu[2], Jianbo Liang[2], DaeGwi Kim[2], Yong-Gu Shim[2], *Naoteru Shigekawa[2] (1. Graduate School of Engineering, Osaka City University (Japan), 2. Graduate School of Engineering, Osaka Metropolitan University (Japan))

[Tu4-P52-02]

Potential Na_2Pc+TCNQ Heterodispersed Thin Film Heterostructure for Organic Photovoltaic Applications

*Leon Hamui[1] (1. Universidad Anahuac Mexico (Mexico))

[Tu4-P52-03]

Preparation of (Mn,Fe,V)Si_γ Single Crystals for Infrared Absorption Optoelectronics

*Toshiaki Chiba[1], Kei Hayashi[1], Makoto Shimizu[2], Yuzuru Miyazaki[1] (1. Department of Applied Physics, Graduate School of Engineering, Tohoku University, Japan (Japan), 2. Department of Mechanical Systems Engineering, Graduate School of Engineering, Tohoku University, Japan (Japan))

[Tu4-P52-04]

Improvement of characteristics of Si cells coated with thin luminescence downshifting layers

*Yuki idutsu[1], Yuki Sumimoto[1], Keigo Awai[2], Jianbo Liang[1], DaeGwi Kim[1], Yong-Gu Shim, Naoteru Shigekawa (1. Osaka Metropolitan University (Japan), 2. Osaka City University (Japan))

[Tu4-P52-05]

Decreasing the carrier concentration of $CrSi_2$ via Si adjustment and Mn substitution

*Bing Lan[1], Kei Hayashi[1], Zhicheng Huang[1], Toshiaki Chiba[1], Yuzuru Miyazaki[1] (1. Tohoku University (Japan))

[Tu4-P52-06]

Mn Doped ZnS Quantum Dots with Tunable Spectra as Efficient Down-Shifting Materials for Photovoltaics

*Hua Liang[1], Zhilong Zhang[1] (1. South China University of Technology (China))

[Tu4-P52-07]

Wavelength-Recognizable SbSI:Sb_2S_3 Photovoltaic Devices: Elucidation of the Mechanism and Modulation of their Characteristics

*Tai Kobayashi[1], Ryosuke Nishikubo[1,2], Yizhou Chen[3], Kazuhiro Marumoto[3], Akinori Saeki[1,2] (1. Osaka University (Japan), 2. ICS-OTRI (Japan), 3. University of Tsukuba (Japan))

[Tu4-P52-08]

First-Principles Calculations on Carrier Dynamics of Ge-Doped Sn Perovskites

*Koichi Yamashita[1], Masanori Kaneko[1] (1. Yokohama City University (Japan))

[Tu4-P52-09]

Paper-thin Al-catalyzed Si nanowire photovoltaic cells and efficiency enhancement by energy transfer from Mn-doped perovskite nanocrystals

*Wipakorn Jevasuwan[1], Naoki Fukata[1] (1. National Institute for Materials Science (NIMS) (Japan))

[Tu4-P52-10]

Feature of output characteristics of InGaAs/InP heterojunction thermo-radiative diode

*Tetsuya Nakamura[1], Kentaroh Watanabe[2] (1. JAXA (Japan), 2. University of Tokyo (Japan))

[Tu4-P52-11]

Tunable Upconversion Luminescence Based on Quantum Dot and Organic Molecules Hybrid Materials for Photovoltaics

*Yanchao Zhao[1], Jia Luo[1], Yanhong Fan[1], Hua Liang[1], Jiajie Wu[1], Zhuang Miao[1], Shuangke Wu[1], Yaqi Gu[1], Zhilong Zhang[1] (1. School of Emergent Soft Matter, South China University of Technology, (China))

[Tu4-P52-12]

Ytterbium-Doped Perovskite Quantum Dots Glasses for Spectral Down-Conversion

*Yanhong Fan[1], Zhuang Miao[1], Shuangke Wu[1], Jiajie Wu[1], Yanchao Zhao[1], Jia Luo[1], Hua Liang[1], Zhi-Long Zhang[1] (1. School of Emergent Soft Matter, South China University of Technology (China))

[Tu4-P52-13]

Fabrication of Cu_3N thin films on MgO(100) and α-Al_2O_3(0001) substrates by reactive radio frequency magnetron sputtering: a comparative study

*Shanta Majumder[1], Miho Ohishi[1], Md Abdul Majed Patwary[2], Katsuhiko Saito[1], Qixin Guo[1], Tooru Tanaka[1] (1. Saga University (Japan), 2. Comilla University (Bangladesh))

[Tu4-P52-14]

An efficient down-shifting layer for silicon-based solar cells

*Jia Luo[1], Yanhong Fan[1], Yanchao Zhao[1], Jiajie Wu[1], Hua Liang[1], Miao Zhuang[1], Shuangke Wu[1], Zhilong Zhang[1] (1. South China University of Technology (China))

[Tu4-P52-15]

Insights into the Potential of Sb alloyed Cu_2AgBiI_6-based Photovoltaic Devices for Efficient Indoor Light Harvesting

Abhishek Kumar[1], *Deepak Joshi[1], Vivek Garg[1] (1. Sardar Vallabhbhai National Institute of Technology Surat (India))

[Tu4-P52-16]

Effect of P doping in ZnCdTe thin films grown by molecular beam epitaxy on GaAs(100) substrates for solar cells

Enejo Victor Sule[1], *Muhamad Mustofa[1], Katsuhiko Saito[1], Qixin Guo[1], Tooru Tanaka[1] (1. Saga University (Japan))

[Tu4-P52-17]

Overcoming the efficiency and cost barrier for large-area quantum dot photovoltaics enabled by stable semiconductive inks

*SHI GUOZHENG[1,2], ZEKE LIU[1], QING SHEN[2], WANLI MA[1] (1. Soochow university (China), 2. The University of Electro-Communications (Japan))

[Tu4-P52-18]

Photocatalytic hydrogen generation using perovskite compounds

*Keita Matsumi[1], Masahiro Fujita[1], Masahiro Rikukawa[1], Yuko Takeoka[1] (1. Sophia University (Japan))

[Tu4-P52-19]

Expanding Solar Absorption Spectrum via Upconversion Nanoparticles with $ZnFe_2O_4$ and TiO_2 for Improved Photoelectrochemical Reaction

*Yoongu Lim[1], Song Yeul Lee[2], Kyoungsuk Jin[3], Yong Il Park[2], Uk Sim[1,2,4] (1. Korea Institute of Energy Technology (Korea), 2. Chonnam National University (Korea), 3. Korea University (Korea), 4. NEEL Sciences, INC. (Korea))

[Tu4-P52-20]

Photoelectrochemical Nitrogen Reduction through Synergistic Interaction of MoS_2 on $La_2Zr_2O_7$ Nanofibers

*Yoongu Lim[1], Min Seo Yu[2], Kyoungsuk Jin[3], Mi-Kyung Han[2], Uk Sim[1,2,4] (1. Korea Institute of Energy Technology (Korea), 2. Chonnam National University (Korea), 3. Korea University (Korea), 4. NEEL Sciences, INC. (Korea))

[Tu4-P52-21]

Stability of $FAPbI_3$ perovskite quantum dot solar cells

*Shunkichi Hoji[1], Hua Li[1], Shuzi Hayase[1], Qing Shen[1] (1. University of Electro-Communications (Japan))

[Tu4-P52-22]

Synthesis Optimization of PbS Quantum Dot Inks for Active Layer of PbS Quantum Dot Solar Cells

*YUYAO WEI[1], Chao Ding[1], Shuzi Hayase[1], Qing Shen[1] (1. The University of Electro-Communications, Japan (Japan))

[Tu4-P52-23]

Ultra-Stable Zeolitic Lead Halide Perovskite Quantum Dots for Photocatalytic Hydrogen Production

*Joon Young Kim[1,2], Il Goo Kim[1], Pildo Jung[1], Dongjin Lee[1], Dae Jun Moon[2], Gyoung Hwa Jeong[2], Kyoungsuk Jin[3], Uk Sim[1,2] (1. NEELSCIENCES (Korea), 2. KENTECH (Korea), 3. Korea University (Korea))

[Tu4-P52-24]

Laser Deposition Parameters and Their Impact on the Physical Properties of Halide Perovskite Thin Films

Sota Fukano[1], Tomomasa Sato[1], *Nobuyuki Matsuki[1] (1. Kanagawa University (Japan))

[Tu4-P52-25]

Bifacial efficiency estimation of $Cs_3Sb_2I_9$ - based indoor bifacial perovskite solar cell

*Rajesh Kumar Sharma[1], Mohammad Ayan Khan[1], Vivek Garg[1], Shivendra Yadav[1] (1. Sardar Vallabhbhai National Institute of Technology, Surat (India))

[Tu4-P52-26]

Stable Inorganic Colloidal Tin and Tin-Lead Perovskite Nanocrystals with Ultra-Long Carrier Lifetime via Sn (IV) Control

*Yusheng Li[1], Dandan Wang[1], Shuzi Hayase[1], Qing Shen[1] (1. The University of Electro-Communications (Japan))

[Tu4-P52-27]

Accurate bandgap prediction of CsSnI3-xBrx perovskite for photovoltaic applications using DFT

*Dhruv Singh Thakur[1], Vivek Garg[1], Shivendra Yadav[1] (1. Sardar Vallabhbhai National Institute of Technology, Surat (India))

[Tu4-P52-28]

Optical Properties in Mixed Tin-Lead Perovskite Nanocrystals

*Dandan Wang[1], Yusheng Li[1], Shuzi Hayase[1], Qing Shen[1] (1. The University of Electro-Communications (Japan))

[Tu4-P52-29]

In-situ epitaxial growth of 2D-3D perovskite nanocrystal heterojunction inks

*Yongge Yang[1], Shuzi Hayase[1], Qing Shen[1] (1. The University of Electro-Communications (Japan))

[Tu4-P52-30]

Advanced Near-Infrared Organic Photoplethysmography Sensors: Enhancing Performance through Optical Cavity Modulation in the Photosensitive Layer

*Byung Gi Kim[1], Zhao Yang[2], Woongsik Jang[1], Dong Hwan Wang[1,2] (1. Department of Intelligent Semiconductor Engineering, Chung-Ang University (Korea), 2. School of Integrative Engineering, Chug-Ang University (Korea))

[Tu4-P52-31]

Cylindrical PV for next generation solar cells

*Daisuke Hirotani[1], Daishiro Nomura[1], Toshihiro Takenoya[1], Yuya Sono[1], Takatoshi Nomura[2], Masahiro Hayashi[2], Masaki Nakamura[3], Tomoyuki Hirami[3], Shuzi Hayase[4] (1. FUJICO Co.,LTD (Japan), 2. CKD Corporation (Japan), 3. Ushio INC. (Japan), 4. University of Electro-Communication (Japan))

[Tu4-P52-32]

Innovative Synthesis and Functionalization of Cu and AuCu Nanoparticles for Enhanced SERS and Catalytic Applications

*MEI-YI LIAO[1] (1. National Pingtung University (Chinese Taipei))

[Tu4-P52-33]

Development of Pb-free perovskite solar cells

*Tingli Ma[1] (1. Kyushu Institute of Technology (Japan))

[Tu4-P52-35]

Investigation of defect reduction and hydrogen diffusion in Si/SiO_2 multilayer films by hydrogen radical treatment

*Shigeru Yamada[1], Naoki Matsuo[1], Tomohiro Deto[1], Tomoki Fujisawa[1], Yuto Ebata[1], Yuki Nishi[1], Takashi Itoh[1] (1. Gifu University (Japan))

[Tu4-P52-36]

Photovoltaic Properties and Stability of Lead Sulfide / Zinc Oxide Heterojunction Solar Cells Using Small Dicarboxylic Acids Ligand for the Hole Transport Layer

*Koichi Tamaki[1], Haibin Wang[1], Xiaoxiao Mi[1], Naoyuki Shibayama[2], Ryota Jono[1,3], Takaya Kubo[1], Hiroshi Segawa[1] (1. The University of Tokyo (UTokyo) (Japan), 2. Toin University of Yokohama (Japan), 3. Research Organization for Information Science and Technology (RIST) (Japan))

[Tu4-P52-37]

Mist CVD High-k $Al_xM_{1-x}O_y$ (M=Al, Hf) for Improved Interfaces in 2D Layer Materials (WSe_2 and GaS)-based Optoelectronics

*Abdul Kuddus[1], Keiji Ueno[2], Hajime Shirai[2], Shinichiro Mouri[1] (1. Ritsumeikan University bkc (Japan), 2. Saitama University (Japan))

[Tu4-P52-38]

Effect of *n*-type window layer materials on two-step photon absorption current in ZnTeO-based intermediate band solar cells

*Yuta Suetugu[1], Katsuhiko Saito[1], Qixin Guo[1], Tooru Tanaka[1] (1. Saga university (Japan))

[Tu4-P52-39]

Effects of mirrors attached to sides of luminescence downshifting layers on Si solar cells

*Yuki Sumimoto[1], Yuki Idutsu[1], Keigo Awai[2], Jianbo Liang[1], Naoteru Shigekawa[1] (1. Osaka Metropolitan University (Japan), 2. Osaka City University (Japan))

[Tu4-P52-40]

Demonstration of thermoradiative power conversion from InAsSb based mid-infrared light emitting diodes

*Muhammad Waleed Akram[1], Naoya Sagawa[1], Shuhei Yagi[1], Hiroyuki Yaguchi[1] (1. Saitama University Japan (Japan))

[Tu4-P52-41]

Improved performances of wide-gap perovskite solar cells via efficient hole transport layer based on I-III-VI QD solids

*XUE ZHENG[1], Xia Chen[1], Chunlei Yang[1], Jie Zhang[1] (1. Shenzhen Insitute of Advanced Technology, Chinese Academy of Sciences)

[Tu4-P52-42]

Formation of SiGe/Si PN heterojunction by Screen-Printing Aluminum Paste and Germanium Source

*Kaito Kitaura[1]、Sarah Alamri[1]、Shota Suzuki[2]、Takashi Kuroki[2]、Moeko Matsubara[2]、Hideaki Minamiyama[2]、Masakazu Tane[1]、Jun Tatebayashi[1]、Marwan Dhamrin[2] (1. Osaka University, 2. Toyo Aluminum K.K.)

Sub area 1-2: Grid Integration and Energy Management | Area1: PV in Sustainable Energy System：Sub area 1-2: Grid Integration and Energy Management

Thu. Nov 14, 2024 9:00 AM - 10:30 AM JST | Thu. Nov 14, 2024 12:00 AM - 1:30 AM UTC PS-12/Multipurpose Hall (1F)

[Th1-P12] Sub area 1-2: Grid Integration and Energy Management

[Th1-P12-01]

Comparison of Model Predictive Control and Heuristics in Building Energy Management with Photovoltaic

*Alexander Blinn[1], Ulrich Kue[1], Fabian Kennel[1] (1. Environmental Campus Birkenfeld, Trier University of Applied Sciences (Germany))

[Th1-P12-02]

Deep Learning-based Short-term Solar Forecasting Starting at Nighttime

Jun Sasaki[1], *Kenji Utsunomiya[1], Maki Okada[1], Koji Yamagichi[1] (1. Japan Weather Association (Japan))

[Th1-P12-03]

Fully covered photovoltaic thermal (PVT) collector coupled with vapour absorption refrigeration (VAR) system: a comparative study

Abhshek Tiwari[1], *Shruti Aggarwal[1] (1. Guru Gobind Singh Indraprastha University (India))

[Th1-P12-04]

Meteonorm Version 9.0

*Jan Remund[1], Pascal Graf[1], Michael Schmutz[1], David Schweizer[1], Mathias Aschwanden[1], David Urwyler[1], Gerhard Zaugg[1] (1. Meteotest AG (Switzerland))

[Th1-P12-05]

Using Algorithm for Simulation Attenuating Harmonic Currents in the Power System to Protect the Inverter 3 - phase Grid Connected under Distorted Voltage Conditions

Worrajak muangjai Muangjai[1], *Thanet Phugun[1], Anon Namin[1], Kan Nakaiam[1], Kittinun Srasuay[1], Kosol Oranpiroj[1], Nopporn Patcharaprakiti[1], Nattawat Panlawan[1], Wiwat Tippachon[1], Teerasak Somsak[1], Surasak Yousawat[1], Jutturit Thongpron[1] (1. Rajamangala University of Technology Lanna (Thailand))

[Th1-P12-06]

Techno-economics Investigation of Microgrid Hybrid PV-Battery and Diesel Generator System: Khlong Ruea Thailand

Teerasak Somsak[2], *Montri Ngao-det[1] (1. Faculty of Engineering, Rajamangala University of Technology Lanna (Thailand), 2. College of Integrated Science and Technology, Rajamangala University of Technology Lanna (Thailand))

[Th1-P12-07]

Photovoltaic based electrification of parking area with electrical vehicle charging station

*Shafiqur Rehman A.A. Hafez Waliullah[1], Abdul Baseer Mohammed[2] (1. King Fahd University of Petroleum & Minerals (Saudi Arabia), 2. School of Engineering & Computing, Mechanical Engineering Department, American International University (Kuwait))

[Th1-P12-08]

Comparative Analysis of Techno-economics of Supercapacitor, Battery-supercapacitor, and Direct of Photovoltaic Water Pumping System

Teerasak Somsak[2], *Kan Nakaiam[1] (1. Faculty of Engineering, Rajamangala University of Technology Lanna (Thailand), 2. College of Integrated Science and Technology, Rajamangala University of Technology Lanna (Thailand))

[Th1-P12-09]

Optimizing Peak Shaving with Lithium Batteries by ARIMA-Based Predictive Modeling

surasak yousawat[1], *Kan Nakaiam[1] (1. Rajamangala University of Technology Lanna (Thailand))

[Th1-P12-10]

A design and development of a 48-volt solar charging system for electric golf cart with carbon zero emissions

*Kittinun Srasuay[1], Nopporn Patcharaprakiti [1] (1. Faculty of Engineering ,Rajamangala University of Technology Lanna (Thailand))

[Th1-P12-11]

Real-time Measuring and Monitor Photovoltaic Water Pumping System Performance and Detecting Alarm Abnormalities

*Nattawat Panlawan[1], Wasin Aiaoheng[1] (1. Faculty of Engineering, Rajamangala University of Technology Lanna (Thailand))

[Th1-P12-12]

Integrating Machine Learning to Forecast Electrical Characteristics of Dust-Affected Monocrystalline Silicon Solar Cells for Sustainable Energy Solutions

Prakaykaew Boottarat[1], Chonlatee Photong[2], *Sarinya Sala-ngam[2] (1. Faculty of Engineering, Sakon Nakhon Rajabhat University (Thailand), 2. Faculty of Engineering, Mahasarakham University (Thailand))

[Th1-P12-13]

Day-ahead forecasting of regional PV power generation by Auto-Encoder with meteorological elements on multiple pressure surfaces

*Yusuke Mori[1], Shinji Wakao[1], Hideaki Ohtake[2], Takahiro Takamatsu[2], Takashi Oozeki[2] (1. Waseda University (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan))

[Th1-P12-14]

Short-term fluctuations forecasting of photovoltaic power generation based on LSTM

*Xue Fang[1], Jindan Cui[1], Kenji Utsunomiya[2], Jun Sasaki[2], Maki Okada[2], Koji Yamaguchi[2], Yuzuru Ueda[1] (1. Tokyo University of Science (Japan), 2. Japan Weather Association (Japan))

[Th1-P12-15]

Analysis of the impact of data windowing on LSTM-based PV power generation forecasting

*Chamnan Limsakul[1], Anawach Sangswang[1] (1. King Mongkut's University of Technology Thonburi (Thailand))

[Th1-P12-16]

The fourth edition of the best practices handbook for the collection and use of solar resource data

*Manajit Sengupta[1], Aron Habte[1], Elke Lorenz[2], Christian Gueymard[3], Adam R Jensen[4], Jan Remund[5], Wilfried Van Sark[6], Stefan Wilbert[7] (1. National Renewable Energy Laboratory (United States of America), 2. Fraunhofer Institute for Solar Energy Systems (Germany), 3. Solar

Consulting Services (United States of America), 4. Technical University of Denmark (Denmark), 5. Meteotest (Switzerland), 6. Utrecht University (Netherlands), 7. DLR (Spain))

[Th1-P12-17]

The National Climate Database (NCDB): an unbiased 100-year dataset for PV modeling

*Manajit Sengupta[1], Jaemo Yang[1], Aron Habte[1], Yu Xie[1], Douglas Nychka[2], Maggie Bailey[2], Soutir Bandyopadhyay[2] (1. National Renewable Energy Laboratory (United States of America), 2. Colorado School of Mines (United States of America))

[Th1-P12-18]

Development of a MEPS forecasting method for creating large ensemble predictions based on the MEPS

*Shuntaro Nakayama[1], Hideaki Ohtake[1], Takahiro Takamatsu[1], Takashi Oozeki[1] (1. National Institute of Advanced Industrial Science and Technology (Japan))

[Th1-P12-19]

Estimation of Charging Load Reduction Effects by Vehicle-Integrated Photovoltaics Based on Road Traffic Census Data

*Ryotaro Kawafuchi[1], Ryuto Shigenobu[1], Akiko Takahashi[1], Masakazu ito[1], Oda Takuya[2] (1. University of Fukui (Japan), 2. University of Kitakyushu (Japan))

[Th1-P12-20]

Estimation of confidence intervals for short-term solar irradiance forecasts

*Masahiro Sawada[1], Kenji Utsunomiya[1], Jun Sasaki[1], Maki Okada[1], Koji Yamaguchi[1] (1. Japan Weather Association (Japan))

[Th1-P12-21]

Application of nonlinear Kalman filter as postprocessing of solar irradiance prediction with numerical weather model

Perawut Chinnavornrungsee[1], Nuwong Chollacoop[1], Sasiwimon Songtrai[2], Kobsak Sriprapha[2], Jun Yoshino[3], *Tomonao Kobayashi[3] (1. National Energy Technology Center (Thailand), 2. National Electronics and Computer Technology Center (Thailand), 3. Gifu University (Japan))

[Th1-P12-22]

Comparison of ensemble forecasting of solar irradiance with different number of ensemble member

Perawut Chinnavornrungsee[1], Nuwong Chollacoop[1], Sasiwimon Songtrai[2], Kobsak Sriprapha[2], Jun Yoshino[3], *Tomonao Kobayashi[3] (1. National Energy Technology Center (Thailand), 2. National Electronics and Computer Technology Center (Thailand), 3. Gifu University (Japan))

[Th1-P12-23]

Optimal operation plan for BESS to reduce electricity costs in factory with PV

*Shota Okazaki[1], Akiko Takahashi[1], Ryuto Shigenobu[1], Masakazu Ito[1] (1. University of Fukui (Japan))

[Th1-P12-24]

Application of k-fold cross validation in photovoltaic power generation forecasting using LSTM Networks

*Chamnan Limsakul[1], Anawach Sangswang[1] (1. King Mongkut's University of Technology Thonburi (Thailand))

[Th1-P12-25]

Study on requirements for hydrogen production facilities and related control methods to achieve carbon neutrality

*HIryu Sudo[1], Chiyori T. Urabe[1], Takeyoshi Kato[1] (1. Nagoya University (Japan))

[Th1-P12-26]

Development of Error Absorption Headroom Setting Algorithm Using Bivariate Polynomial Surface to Create Reserve Power in A PV Power Plant

*Jindan Cui[1], Xue Fang[1], Takashi Oozeki[2], Yuzuru Ueda[1] (1. Tokyo University of Science (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan))

[Th1-P12-27]

Assessment of Power Flow and Voltage under Distributed Energy Resources Utilization for Mitigation of Congestion at Distribution Network Substations

*Akihisa Kaneko[1], Hiroshi Suwa[1], Yutaka Iino[1], Yu Fujimoto[1], Hideo Ishii[1], Yasuhiro Hayashi[1] (1. Waseda University (Japan))

[Th1-P12-28]

Evaluation of The Economics of The Green Base Transceiver Stations by Participating in DR focused on The Capacity Market

*Takayuki Hirano[1], Shinji Wakao[1], Fumiaki Igarashi[2], Masaki Nakamura[2] (1. Waseda University (Japan), 2. NTT DOCOMO, Inc. (Japan))

[Th1-P12-29]

Time series analysis of PV power generation with shading losses and weather effects using GIS

*Taiju Igarashi[1], Jindan Cui[1], Yuzuru Ueda[1] (1. Tokyo University of Science (Japan))

[Th1-P12-30]

Optimal Sizing and Placement of Diesel Generators, PVs, and BESS for Islanded Microgrid Electrification: Economic and Operational Considerations

*Piyapath Siratarnsophon[1], Kulwadee Somboonviwat[1], Pairote Thongprasri[1], Umarin Sangpanich[1] (1. Faculty of Engineering at Sriracha, Kasetsart University (Thailand))

[Th1-P12-31]

Multivariate Time Series Clustering for Determining Representative Load and PV Generation Profiles for Robust Energy System Analysis and Design

*Kulwadee Somboonviwat[1], Piyapath Siratarnsophon[1], Roongrojana Songprakorp[2], Umarin Sangpanich[1] (1. Faculty of Engineering at Sriracha, Kasetsart University (Thailand), 2. School of Energy, Environment and Materials, King Mongkut's University of Technology Thonburi, Thailand (Thailand))

[Th1-P12-32]

Advancing energy access, sustainability and policy implications in Africa

*Christian Collins[1] (1. University of Liberia (Liberia))

[Th1-P12-33]

GIS-based Electric Vehicle Charging Station Placement with integration of Renewable Energy

Jiyoon Ku[1], *Hyeong-Dong Park[2,3] (1. Department of Energy Systems Engineering, Seoul National University (Korea), 2. Department of Energy Resources Engineering, Seoul National University (Korea), 3. Research Institute of Energy and Resources, Seoul National University (Korea))

[Th1-P12-34]

Evaluation of irradiance transposition models for PV performance under hot desert conditions

*Abdul Wahab Ziaullah[1], Dunia Bachour Bachour[1], Daniel Perez-Astudillo[1] (1. Qatar Environment and Energy Research Institute)

Sub area 1-3: Green Energy Carriers and Storage | Area1: PV in Sustainable Energy System：Sub area 1-3: Green Energy Carriers and Storage

Thu. Nov 14, 2024 9:00 AM - 10:30 AM JST | Thu. Nov 14, 2024 12:00 AM - 1:30 AM UTC PS-21/Multipurpose Hall (1F)

[Th1-P13] Sub area 1-3: Green Energy Carriers and Storage

[Th1-P13-01]

Extension of Battery Lifespan for Small Off-grid PV System with Equipped Generator Controller

*Aswin Hongsingthong[1], Bancha Janthong[2], Rangson Pluemkamon[1], Saifon Kotesopa[1], Nuttakarn Udomdachanut[1], Amornrat Limmanee[1], Natee Thong-Un[2] (1. National Energy Technology Center (ENTEC), National Science and Technology Development Agency (NSTDA) (Thailand), 2. Department of Engineering, King Mongkut's University of Technology North Bangkok (Thailand))

[Th1-P13-02]

Performance analysis of sand-based solar geyser integrated with photovoltaic panel

Dinesh Kumar Saini[1], *Avadhesh Yadav[1] (1. National institute of Solar Energy (India))

[Th1-P13-03]

Thermal and flammability of 1-Butyl-2,3-Dimethylimidazolium Bromide(BMI-Br) composite polymer electrolytes for Li-metal batteries

*Jae Hyun KIM Kim[1] (1. DGIST (Korea))

Sub area 4-1: Organic and Inorganic Photovoltaics | Area4: Thin-film Photovoltaics and Modules：Sub area 4-1: Organic and Inorganic Photovoltaics

Thu. Nov 14, 2024 9:00 AM - 10:30 AM JST | Thu. Nov 14, 2024 12:00 AM - 1:30 AM UTC PS-13/Multipurpose Hall (1F)

[Th1-P41] Sub area 4-1: Organic and Inorganic Photovoltaics

[Th1-P41-01]

Identification of the scribe related process variations in flexible amorphous silicon solar foils using EL imaging

*Peer Johannes Theodore Sluijs[1], Sreejith Koorthedath Pullayikody[1], Ravi Vasudevan[2], Arno Smets[1] (1. Delft University of Technology (Netherlands), 2. HyET Solar B.V. (Netherlands))

[Th1-P41-02]

A broad band light trapper quasi-periodic silicon inverted-pyramid arrays synthesize by Lithography free method for high efficiency thin silicon solar cells

*Anil Kumar[1], Divya Rani[2], Anjali Saini[3], Neeraj Joshi[4], Ravi Kumar Varma[5], Mrinal Dutta[6], Arup Samanta[7] (1. Student (India), 2. Student (India), 3. Student (India), 4. Student (India), 5. Student (India), 6. Deputy Director (India), 7. Professor (India))

[Th1-P41-03]

Formation of 2μm-thick 10μm-wide (001) Si stripes without twin boundary and random grain boundary on SiO2 substrate for solar cell application

*Ryota Nosu[1], Koyo Takimoto[1], Hanabi Takahashi[1], Wenchang Yeh[1] (1. Shimane University (Japan))

[Th1-P41-04]

Simulation studies on optimization of Antireflection coating for n-MoS_2/c-Si (p) heterojunction solar cells

*ANTERDIPAN SINGH[1], PRATIMA AGARWAL[1] (1. Indian Institute of Technology Guwahati (India))

[Th1-P41-05]

Structural, phonon, and optical characterizations of hafnium oxynitride thin films for hot carrier properties

*Ayush Pratik[1], Gavin Conibeer[2], Santosh Shrestha[2] (1. PhD Student (Australia), 2. Professor (Australia))

[Th1-P41-06]

High Quality Fluorine-Doped Tin Oxide Film (FTO) with 300 mm Square Prepared by Intermittent Spray Pyrolysis Deposition

*Shoji Kaneko[1], Shunichi Ohta[1], P. Viraj Jayaweera[1] (1. SPD Laboratory, Inc. (Japan))

[Th1-P41-07]

A COMPUTATIONAL STUDY ON THE EFFECT OF LENGTH DISPERSITY IN NANOWIRE-BASED TRANSPARENT ELECTRODES

Yugam Bharti[1], *Shruti Aggarwal[1], Vikas Malik[2] (1. Guru Gobind Singh Indraprastha University (India), 2. Jaypee Institute of Information Technology (India))

[Th1-P41-08]

Fabrication and characterization of IGZO/Al/IGZO sandwich structure for p-Si solar cells

*Tung-Lin Kuo[1], Chen-Hsu Tai[1], Chih-Chun Chuang[1], Yu-Hsuan Chang[1], Hong-Shi Liu[1], Chi-Da Yang[1], Jia-Hao Lin[2], Yu-Hung Chen[1] (1. National Kaohsiung University of Science and Technology, Kaohsiung, Chinese Taipei (Chinese Taipei), 2. Opto-Electronics Technology Section Energy and Agile System Department, Metal Industries Research & Development Centre, Kaohsiung, Chinese Taipei (Chinese Taipei))

[Th1-P41-09]

Comparison of effects of ZnO and IGZO as window layer on performance of Si solar cells

*Yu-Hung Chen[1], Hong-Shi Liu[2], Jia-Hao Lin[3] (1. National Kaohsiung University of Science and Technology (NKUST) (Chinese Taipei), 2. National Kaohsiung University of Science and Technology (NKUST) (Chinese Taipei), 3. Metal Industries Research & Development Centre (Chinese Taipei))

[Th1-P41-10]

Perovskite solar cell modules: revealing main degradation mechanisms under high-temperature and damp-heat conditions

*Abdurashid Mavlonov[1], Hiroki Mori[1], Navapat Krobkrong[1], Tomohiko Hara[1], Yoshihiro Hishikawa[1], Takayuki Negami[1], Yu Kawano[1], Akinobu Hayakawa[2], Takashi Minemoto[1] (1. Ritsumeikan University (Japan), 2. Sekisui Chemical Co., Ltd. (Japan))

[Th1-P41-11]

The behavior of methylammonium lead iodide-based perovskite solar cell module under the partial-shading condition

*Tomohiko Hara[1], Toshiya Yasuda[1], Hiroki Mori[1], Navapat Krobkrong[1], Yoshihiro Hishikawa[1], Abdurashid Mavlonov[1], Yu Kawano[1], Akinobu Hayakawa[2], Takashi Minemoto[1] (1. Ritsumeikan University (Japan), 2. Sekicui chemical Co. Ltd. (Japan))

[Th1-P41-12]

Ambient-air processed perovskite $CsPbBr_3$ thin films for solar cell applications

*Xorell Ivanov Monov[1], Prima Fitri Rusliani[1], Shobih Shobih[2], Natalita Maulani Nursam[2], Brian Yuliarto[1], Wilman Septina[2] (1. Bandung Institute of Technology (Indonesia), 2. National Research and Innovation Agency (Indonesia))

[Th1-P41-13]

Pt-free polymeric electrocatalysts for dye-sensitized solar cells

Kyumi Han[1], *Hyunwoong Seo[1] (1. Inje University (Korea))

[Th1-P41-14]

Dye-Sensitized Solar Cells Based on Near-infrared Absorbing Heptamethine Cyanine Dye with the Diphenylamino Groups

*Hiroki Masuoka[1], Kazuhiro Manseki[1], Yasuhiro Kubota[1], Toshiyasu Inuzuka[1], Takashi Sugiura[1], Kazumasa Funabiki[1] (1. Gifu University (Japan))

[Th1-P41-15]

Development of simple structure p-type polymers for solar cells based on a design through machine learning

*Shogo Tadokoro[1], Fumitaka Ishiwari[1], Akinori Saeki[1] (1. Graduate School of Engineering, Osaka University. (Japan))

[Th1-P41-16]

Development of semiconducting polymers incorporating novel thiazole-containing π-extended fused rings for organic photovoltaics

*Mayu Tomita[1], Hiroto Iwasaki[1], Kodai Yamanaka[1], Tubasa Mikie[1], Itaru Osaka[1] (1. Graduate School of Advanced Science and Engineering, Hiroshima University (Japan))

[Th1-P41-17]

Synthesis of Diketopyrrolopyrrole-based Copolymers for Binary and Ternary Blend Organic Photovoltaics

*Ryosuke Kamimura[1], Fumitaka Ishiwari[1], Akinori Saeki[1] (1. Graduate School of Engineering, Osaka University (Japan))

[Th1-P41-18]

Development of a Nonfullerene Acceptor Based on a New Ladder-Type DAD π-Framework

*Risa Ueda[1], Tsubasa Mikie[1], Masahiko Saito[1], Itaru Osaka[1] (1. Hiroshima University (Japan))

[Th1-P41-19]

Improvement of Non-fullerene Organic Solar Cells by Using the Localized Surface Plasmon Resonance Effect of Metal Nanoparticles

*YUTING MIAO[1], Sachiko Jonai[1], Kazunari Shinbo[1], Keizo Kato[1], Akira Baba[1] (1. Niigata University (Japan))

[Th1-P41-20]

Enhancing efficiency of non-fullerene organic solar cells via volatilizable solid additive system

*Walia Binte Tarique[1], Shahriyar Safat Dipta[1], Ashraful Hossain Howlader[1], Ashraf Uddin[1] (1. University of New South Wales (Australia))

[Th1-P41-21]

Theoretical study on optical absorption properties and charge transfer of NTz-based non-fullerene acceptor molecules

*Haruka Araragi[1], Seihou Jinnai[2], Yutaka Ie[2], Azusa Muraoka[1] (1. Graduate School of Science, Japan Women's University (Japan), 2. The institute of Scientific and Industrial Research, Osaka University (Japan))

[Th1-P41-22]

Analysis of charge states in non-fullerene organic solar cells by ESR spectroscopy

*Atsushi Sato[1], Seira Yamaguchi[1,2], Kaito Inoue[1], Masahiko Saito[3], Itaru Osaka[3], Kazuhiro Marumoto[1,2,4] (1. Department of Material Science, University of Tsukuba (Japan), 2. OIQST, University of Tsukuba (Japan), 3. Hiroshima University (Japan), 4. TREMS, University of Tsukuba (Japan))

[Th1-P41-23]

A Dibenzo[*g,p*]chrysene-Based Organic Semiconductors with Small Exciton Binding Energy

Hiroki Mori[1], *Seihou Jinnai[1], Yasushi Hosoda[1], Yutaka Ie[1] (1. Osaka University (Japan))

[Th1-P41-24]

Hydrogen-bonding interactions among terpolymers enhance the efficiency and stability of non-halogenated solvent-processed polymer solar cells.

*Fiza Arshad[1,2], Muhammad Haris[1,2], Zakir Ullah[3], Chang Eun Song[1,2], Won Suk Shin[1,2], Hyung-Wook Kwon[3] (1. Korea Research Institute Of Chemical Technology (Korea), 2. University of Science and Technology (Korea), 3. Incheon National University (Korea))

[Th1-P41-25]

Crosslinking-Integrated Sequential Deposition: A Method for Efficient and Reproducible Bulk Heterojunctions in Organic Solar Cells

*Yeji Na[1], Hyunkyoung Kim[1], Kyungkon Kim[1] (1. EWHA WOMANS UNIVERSITY (Korea))

[Th1-P41-26]

Synergistic Enhancement of Inverted polymer Solar Cell characteristics using ZnO/Ti_3C_2 as Electron Transport Layer

*Anamika Kem[1], Koteswara Rao Peta[1] (1. University of Delhi (India))

[Th1-P41-27]

Organic solar cells with lead sulfide quantum dots as solid additives

*Kei Takahashi[1], Yuyao Wei[1], Chao Ding[1], Taro Toyoda[1], Shuzi Hayase[1], Qing Shen[1] (1. The University of Electro-Communications (Japan))

[Th1-P41-28]

Agave cantala nanocellulose – cyclic olefin copolymer composite as moisture encapsulation for solar cell devices

*Bernice Mae YU JECO-ESPALDON[1], Kendra Felizimarie MAGSICO[1], Erwin SUMARAGO[3], Myeongok KIM[2], Yoshitaka OKADA[1], Noel Peter TAN[1] (1. University of San Agustin (Philippines), 2. The University of Tokyo (Japan), 3. University of San Carlos (Philippines))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Thu. Nov 14, 2024 9:00 AM - 10:30 AM JST | Thu. Nov 14, 2024 12:00 AM - 1:30 AM UTC PS-11/Multipurpose Hall (1F)

[Th1-P51] Sub area 5-1: Perovskite Photovoltaics

[Th1-P51-01]

Enhancing Perovskite Solar Cell Performance through Chemical Bath Deposition of SnO2 on Mesoporous TiO2 Electrodes

*Wei-Hao Chiu[1], Kun-Mu Lee[1] (1. Chang Gung University (Chinese Taipei))

[Th1-P51-02]

Degradation of perovskite solar cells due to pinholes transforming into current leakage points

*Tatsuro Kawamura[1], Tamotsu Horiuchi[1], Yasuaki Ishikawa[2] (1. EneCoat Technologies Co.,Ltd. (Japan), 2. Aoyama Gakuin University (Japan))

[Th1-P51-03]

Defect states and photoelectric conversion efficiency in $CH_3NH_3PbI_3$ solar cells by varying the application time of antisolvents

Kyoung Su Lee[1], Jaewon Oh[2], Hyunbok Lee[2], Mee-Yi Ryu[2], *Eun Kyu Kim[1] (1. Hanyang University (Korea), 2. Kangwon National University (Korea))

[Th1-P51-05]

Large Scale Equipment Technology for Uniform Perovskite Crystals via Slot-Die Coating and Vacuum Drying

*Takayuki Miyoshi[1], Katsumi Araki[1], Toshiaki Ikada[1], Toshifumi Ito[1], Hisayoshi Tajima[1], Toyoharu Terada[1], Mitsuhiro Shigeta[2], Hiroki Mori[2], Yu Kawano[2], Takashi Minemoto[2] (1. Toray Engineering Co., Ltd. (Japan), 2. Ritsumeikan University (Japan))

[Th1-P51-06]

Development of stable pure iodide wide bandgap perovskite for Si based tandem solar cells

*MINGRUI HE[1], Zhen Li[1], Xiaojing Hao[1] (1. The University of New South Wales (Australia))

[Th1-P51-07]

Dopant-free spiro-type hole-transporting materials by short-step synthesis for efficient and stable perovskite solar cells

*Nobuko Onozawa-Komatsuzaki[1], Daisuke Tsuchiya[2], Shinichi Inoue[2], Atsushi Kogo[1], Takurou N. Murakami[1] (1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan), 2. Nippon Fine Chemical Co., Ltd. (Japan))

[Th1-P51-08]

Controllable acceleration and deceleration of charge carrier transport in metal-halide perovskites

*Mehri Ghasemi[1], Yurou Zhang[2], Baohua Jia[1], Xiaoming Wen[1] (1. RMIT university (Australia), 2. University of Queensland (Australia))

[Th1-P51-09]

Effect of post-annealing treatment on lead-free bismuth-based solar cells

*Aditya Wahyu Anugrah[1], Itaru Raifuku[1,2], Hidenori Kawanishi[1], Yukiharu Uraoka[1] (1. Nara Institute of Science and Technology (Japan), 2. Aoyama Gakuin Institute University (Japan))

[Th1-P51-10]

Morphology Control Additive in Vacuum-Deposited Perovskite Solar Cells

*Yerim Kim[1], Kyungkon Kim[1] (1. Ewha Womans Universtiy (Korea))

[Th1-P51-11]

Reducing plasma damage in bifacial perovskite solar cells and analyzing thedouble-sided light incident characteristics of environmental simulation

Ming-Xun Jiang[1], *HSIU-CHEN KE[1], Chen-Fu Lin[1], Peter Chen[1] (1. National Cheng Kung University (Chinese Taipei))

[Th1-P51-12]

Fabrication of Flexible Perovskite Solar Cells on Stickable-Removable Substrates

*Wassana Lekkla[1,2], Taweewat Krajangsang[3], Surawut Chungchote[1,2] (1. Department of Tool and Materials Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (KMUTT), 126 Prachauthit Rd., Bangmod, Thungkru, Bangkok 10140, Thailand. (Thailand), 2. Research Center of Advanced Materials for Energy and Environmental Technology (MEET), King Mongkut's University of Technology Thonburi (KMUTT) (Thailand), 3. Solar Photovoltaic Research Team, National Energy Technology Center (ENTEC), National Science and Technology Development Agency (NSTDA) (Thailand))

[Th1-P51-14]

Fabrication of $BaZrS_3$ thin film by spin coating of nanoparticles for solar cell absorber

*Mitsuki Yamanishi[1], YOSHINORI KIMOTO[2], ISSEI TAKENAKA[2], TAKUYA KATOU[2], HIROAKI NAKAMURA[2], TAKAHIRO WADA[1], RIKU TEGANE[1], YU KAWANO[1], TKASHI MINEMOTO[1] (1. Ritsumeikan University (Japan), 2. Idemitsu Kosan Company (Japan))

[Th1-P51-16]

Enhancing the photovoltaic conversion efficiency of perovskite solar cells through interface engineering using chelating molecules

*Hong-Yi Lin[1], Kai-Chi Hsiao[1], Ting-Han Lin[1], Kun-Mu Lee[1], Ming-Chung Wu[1] (1. Chang Gung University (Chinese Taipei))

[Th1-P51-17]

Modification of SnO_2 Electron Transport Layer to Suppress the Open Circuit Voltage Loss of the Perovskite Solar Cells

*Shamim Ahmmed[1,2], He Yulu[1], Md. Emrul Kayesh[1], Md. Abdul Karim[1], Kiyoto Matsuishi[2], Ashraful Islam[1] (1. National Institute for Materials Science (Japan), 2. University of Tsukuba (Japan))

[Th1-P51-18]

Development of Perovskite Solar Cells using Amorphous Indium Zinc Oxide substrate

*Kohei Yamamoto[1], Takurou N. Murakami[1] (1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan))

[Th1-P51-19]

Naphthalenediimide electron transport materials as the self-assembled monolayers for perovskite solar cells

*Takashi Funaki[1], Masahiro Kashiwazaki[1,2], Kohei Yamamoto[1], Ryusei Emura[1,2], Hiroyuki Yaguchi[2], Takurou N. Murakami[1] (1. National Institute of Advanced Industrial Science and

Technology (AIST) (Japan), 2. Saitama University (Japan))

[Th1-P51-20]

Enhancement of Power Conversion Efficiency and Stability in Perovskite Solar Cells Using Long Carbon Chain Carbazole Derivatives

*Shu-Chi Lu[1], Ting-Han Lin[1], Kun-Mu Lee[1], Tz-Feng Lin[1], Ming-Chung Wu[1] (1. Chang Gung University (Chinese Taipei))

[Th1-P51-21]

Charge Carrier Recombination and Extraction at the Interfaces of Tin-Based Perovskite Solar Cells and Their Effects on the Photovoltaic Performance

*Dong Liu[1], Yusheng Li[1], Liang Wang[1], Dandan Wang[1], Jiaqi Liu[1], Shuzi Hayase[1], Qing Shen[1] (1. The University of Electro-Communications (Japan))

[Th1-P51-22]

Investigation of Degradation at the Au/Perovskite Interface for Light Stability Analysis in Large-Area Perovskite Modules

*Jiyeon Nam[1], Won-Kyu Lee[1], Da Seul Lee[2], Youngho Choe[3], Donghwan Kim[1], Hae-Seok Lee[4], Yoonmook Kang[4] (1. Department of Materials Science and Engineering, Korea University (Korea), 2. Advanced Institute of Nano Technology (SAINT), Sunkyunkwan University (Korea), 3. Institute of Energy Technology, Korea University (Korea), 4. Graduate School of Energy and Environment (KU-KIST Green School), Korea University (Korea))

[Th1-P51-23]

Development and application of carbon nanotube thin film electrodes via spray coating as alternatives to ITO electrodes for perovskite solar cells

*Naoki Ueoka[1], Mizuki Yagisawa[1], Hisayoshi Oshima[2], Yutaka Matsuo[1,2] (1. Graduate School of Engineering, Nagoya University (Japan), 2. Institute of Materials Innovation, Institutes for Future Society, Nagoya University (Japan))

[Th1-P51-24]

Modifications in Crystallinity and Intermediate Phase of Chloride Incorporated Methylammonium Lead Halide Perovskites

*Saemi Takahashi[1], Satoshi Uchida[1], Hiroshi Segawa[1] (1. The University of Tokyo (Japan))

[Th1-P51-25]

Dual Interfaces Engineering for Enhanced Performance and Stability on Inverted $CsPbIBr_2$ Perovskite Solar Cells

*Siliang Cao[1,2], Md. Abdul Karim[1], Shamim Ahmmed[1,2], Md. Emrul Kayesh[1], Takeaki Sakurai[2], Ashraful Islam[1] (1. National Institute for Materials Science (Japan), 2. University of Tsukuba (Japan))

[Th1-P51-26]

Effects of light soaking conditions on the performance of perovskite solar cell modules

*Koki Azuma[1], Yoshihiro Hishikawa[1], Kyo Matuoka[1], Syunya Yasuda[1], Abdurashid Mavlonov[1], Takayuki Negami[1], Yu Kawano[1], Akinobu Hayakawa[2], Takashi Minemoto[1] (1. Ritsumeikan University (Japan), 2. Sekisui Chemical Co., Ltd. (Japan))

[Th1-P51-27]

Preparation of tin oxide thin films by liquid phase deposition method and their application to the electron transport layer of perovskite solar cells

*Seiya Kurokawa[1], Yuna Tuji[1], Yoshihiro Nagata[1], Yoshifumi Aoi[1] (1. Ryukoku University (Japan))

[Th1-P51-28]

NiO_x Thin Films Prepared by Liquid Phase Deposition (LPD) Method for Hole Transport Layers in Inverted Perovskite Solar Cells

*Yoshihiro Nagata[1], Yoshifumi Aoi[1] (1. Ryukoku university (Japan))

[Th1-P51-29]

Dopant-free polymeric hole transport materials for efficient perovskite solar cells: the effect of halogen substitution on their properties

*Wenxi Ji[1], Xiafei Cheng[1], Wei Yu[2], Lu Wang[1], Longgui Zhang[1], Xinmiao Niu[1], Jiaqi Du[1], Ming'ao Pan[1], Bo Song[2], Yi Zhou[2] (1. Sinopec (Beijing) Research Institute of Chemical Industry Co., Ltd. (China), 2. Soochow University (China))

[Th1-P51-30]

A ladder-like dopant-free hole-transporting polymer for hysteresis-less, high-efficiency, and high ambient stable perovskite solar cells

*Vinich Promarak[1] (1. Vidyasirimedhi Institute of Science and Technology (Thailand))

[Th1-P51-31]

Passivation of TiO_2 Electron Transporting Layer using Organic Functional Material for Highly Efficient Hybrid Perovskite Solar Cells.

*SangHo Won[1], Kyusun Kim[1], Tae Woong Kim[1] (1. Konkuk University (Korea))

[Th1-P51-32]

Low-Cost and Stable Perovskite Solar Cells Fabrication via Carbon with Metal Leaf Electrode and Double Layer Electron Transporting Layer

Anusit Kaewprajak [1], *Pisist Kumnorkaew[1] (1. National Science and Technology Development Agency (Thailand))

[Th1-P51-33]

Hybrid perovskite thin film deposition for perovskite-based tandem photovoltaics

*Julian Petry[1], Ronja Pappenberger[1], Alexander Diercks[1], Raphael Pesch[1], Ulrich Wilhelm Paetzold[1], Paul Fassl[1] (1. Karlsruhe Institute of Technology (Germany))

[Th1-P51-34]

Preparation of high-stability quasi-2D Sn-based perovskites for photovoltaic cells

*Chunqing Li[1], Masahiro Yoshizawa-Fujita[1], Masahiro Rikukawa[1], Yuko Takeoka[1] (1. Sophia University (Japan))

[Th1-P51-35]

Titanium Carbide-Titanium Dioxide Fabricated by Electrical Discharge Machining for Perovskite Solar Cells

*Kamol Sagonvaree[1,2], Wassana Lekkla[1,2], Surawut Chuangchote[1,2] (1. Department of Tool and Materials Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (KMUTT), (Thailand), 2. Research Center of Advanced Materials for Energy and Environmental Technology (MEET) (Thailand))

[Th1-P51-36]

Development of tripodal iso-triazatruxene-based hole-collecting monolayer materials for efficient inverted perovskite solar cells

*Yuta Adachi[1], Minh Anh Truong[1], Hiroshi Matsuda[1], Nobutaka Shioya[1], Tomoya Nakamura[1], Richard Murdey[1], Takeshi Hasegawa[1], Atsushi Wakamiya[1] (1. ICR, Kyoto University (Japan))

[Th1-P51-37]

Large-area fabrication of tin halide perovskite films for solar modules by imidazole additives

*Fuyuki Harata[1], Tomoya Nakamura[1], Minh Anh Truong[1], Richard Murdey[1], Atsushi Wakamiya[1] (1. Institute for Chemical Research, Kyoto university (Japan))

[Th1-P51-38]

Green pulse laser scribing of perovskite solar cells:
comparison of nanosecond and femtosecond laser pulse duration

*Aiko Narazaki[1], Masaki Yumoto[1], Kenichi Tashiro[1], Hideyuki Takada[1], Daniela Serien[1], Kohei Yamamoto[1], Hiroyuki Kanda[1], Takurou N Murakami[1] (1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan))

[Th1-P51-39]

Development of monolayer electron collecting materials based on rhodanine skeletons for perovskite solar cells

*Yuki MIYAKE[1], Tomoya Nakamura[1], Minh Anh Truong[1], Richard Murdey[1], Atsushi Wakamiya[1] (1. Institute for Chemical Research, Kyoto University (Japan))

[Th1-P51-40]

The Indoor and Outdoor Photovoltaic Performance and Degradation Mechanisms of Perovskite Solar Cells

*Hayato Okawa[1], Ryousuke Ishikawa[1], Masatoshi Yanagida[2], Yasuhiro Shirai[2], Makoto Konagai[1] (1. Tokyo City Univercity (Japan), 2. NIMS (Japan))

[Th1-P51-41]

Alkaline Post-treatment on DC Magnetron Sputtered NiOx for Perovskite Solar Cell

*Jiahao Chen[1], Qiang Lou[2], Shengdong Zhang[1,2], Hang Zhou[2] (1. School of Software & Microelectronics, Peking University (China), 2. School of Electronic and Computer Engineering, Peking University Shenzhen Graduate School (China))

[Th1-P51-42]

Reduction of conduction band offset of PCBM and surface passivation of sn-based perovskite solar cell by doping with n-type polymer

*Md Emrul Kayesh[1], Md. Abdul Karim[1], He Yulu[1], Yasuhiro Shirai[2], Masatoshi Yasuhiro Yanagida[2], Ashraful Islam[1] (1. National Institute for Materials Science (Japan), 2. National Institute for Materials Science (Japan))

[Th1-P51-43]

Interface Control and Efficiency Enhancement of Mesoscopic TiO_2 Layer for All Inorganic Perovskite Solar Cells

*LYUFEI XUE[1], Kenichi Oyaizu[1], Hiroyuki Nishide[1], Takeo Suga[1] (1. Waseda University (Japan))

[Th1-P51-44]

Enhancing stability in lead-tin perovskite solar cells through surface Sn^{2+} cation stabilization

*Md. Abdul Karim[1], Yulu He[1], Yasuhiro Shirai[2], Ashraful Islam[1] (1. National Institute for Materials Science (Japan), 2. National Institute for Materials Science (Japan))

[Th1-P51-45]

Improving efficiency and stability of carbon-based perovskite solar cells through incorporation of carbon nanotubes for indoor applications

*piyapond Makming[1], Kumaree Thongimboon[2], Watcharapong Pudkon[2], Thanawat Kanlayapattamapong[2], Theerapat Arpornrat[2], Latthaphonh Kythavone[1], Pattama Apichai[2],

Chaowaphat Seriwattanachai[3], Duangmanee Wongratanaphisan[2], Pongsakorn Kanjanaboos[3], Pipat Ruankham[2], Akarin Intaniewet[1] (1. School of Renewable Energy, Maejo University (Thailand), 2. Department of Physics and Materials Science, Faculty of Science, Chiang Mai University (Thailand), 3. School of Materials Science and Innovation, Faculty of Science, Mahidol University (Thailand))

[Th1-P51-46]

Enhancing UV stability in carbon-based cesium/formamidinium perovskite solar cells with an easily accessible down-conversion 2-hydroxyphenylbenzimidazole derivatives

*Kumaree Thongimboon[1], Watcharapong Pudkon[1], Theerapat Arpornrat[1], Thanawat Kanlayapattamapong[1], Pattama Apichai[1], Piyaporn Makming[2], Latthaphonh Kythavone[2], Panithan Intharawicha[4], Natthawat Semakul[5], Pongsakorn Kanjanaboos[3], Duangmanee Wongratanaphisan[1], Pipat Ruankam[1] (1. Department of Physics and Materials Science, Faculty of Science, Chiang Mai University (Thailand), 2. School of Renewable Energy, Maejo University (Thailand), 3. School of Materials Science and Innovation, Faculty of Science, Mahidol University (Thailand), 4. Faculty of Science, Chiang Mai University (Thailand), 5. Department of Chemistry, Faculty of Science (Thailand))

[Th1-P51-47]

Addressing Evaluation Challenges of Perovskite Solar Cells Using a Multi-channel MPPT-Integrated PV Power Analysis System

*P. V, V. Jayaweera[1], S. Uchida[2], Shoji Kaneko[1], H. Segawa[2] (1. SPD Laboratory, Inc. (Japan), 2. The University of Tokyo (Japan))

[Th1-P51-48]

Synergistic effects of light and heat on ion migration in perovskite solar cells

*Chao-Yu Peter Chen[1], Po-Kai Kung[1], Hung-hsueh Chen[1] (1. National Cheng Kung University (Chinese Taipei))

[Th1-P51-49]

Dual Passivation at SnO_2/Perovskite Interface using Cesium carbonate for Enhancing Indoor Efficiency of Perovskite Solar Cells

*So Jeong Shin[1], Min woo Lee[2], Gyeong G. Jeon[1], Sang Eun Yoon[1], Jae Sung Yun[2,3], Jong H. Kim[1] (1. Ajou university, Korea (Korea), 2. University of New South Wales (Australia), 3. University of Surrey (UK))

[Th1-P51-50]

Progress of Film-Type Perovskite Solar Cells with Current Collection Through-hole Electrodes

*Ryousuke Ishikawa[1], Yuya Momose[1], Yuto Shinya[1], Hayato Okawa[1], Naoki Suyama[1], Makoto Konagai[1] (1. Tokyo City University (Japan))

[Th1-P51-51]

Theoretical investigation of $CsPbI_2Br/Cs_2SnI_6$ perovskite solar cells using SCAPS-1D

*Saad Ullah[1], Firoz Khan[1] (1. King Fahd University of Petroleum and Minerals (Saudi Arabia))

[Th1-P51-52]

Enhancing efficiency and stability of carbon-based all-inorganic $CsPbIBr_2$ perovskite solar cells through additive engineering

*Theerapat Arpornrat[1], Watcharapong Pudkon[1], Kumaree Thongimboon[1], Thanawat Kanlayapattamapong[1], Pattama Apichai[1], Piyapond Makming[2], Latthaphonh Kythavone[2], Atcharawon Gardchareon[1], Duangmanee Wongratanaphisan[1], Pipat Ruankham[1] (1. Department of Physics and Materials Science, Chiang Mai University, Chiang Mai (Thailand), 2.

School of Renewable Energy, Renewable Energy Engineering, Maejo University, Chiang Mai (Thailand))

[Th1-P51-53]

Exploration for metastable phases of $CH_3NH_3SnI_3$ using in-situ observation and investigation of physical properties after high-pressure and high-temperature treatment

*Kenta Nakahara[1], Yongpeng Tang[1], Qing Wang[1], Souta Inoue[2], Tomoki Iio[2], Reo Miyazaki[2], Masafumi Matsushita[2], Reina Utsumi[3], Yuki Nakahira[3], Hiroyuki Saito[3], Satoshi Iikubo[1] (1. Kyushu University (Japan), 2. Ehime University (Japan), 3. National Institutes for Quantum Science and Technology (Japan))

[Th1-P51-54]

Transient photocurrent of perovskite solar cells excited by pulse light

*Masao Isomura[1] (1. Tokai Univ (Japan))

[Th1-P51-55]

Exploring Organic Molecules for Perovskites Solar Cells Using Deep Learning

*Naomu Sekiguchi[1], Satoshi Iikubo[1] (1. Kyushu University (Japan))

[Th1-P51-56]

Flexible Double-walled Carbon Nanotube Transparent Electrodes for Foldable Perovskite Solar Cells and Modules

*Unsoo Kim[1], Jeong-Seok Nam[2], Jungjin Yoon[3], Jiye Han[2], Mansoo Choi[4], Il Jeon[2] (1. Korea Institute of Energy Research (Korea), 2. Sungkyunkwan University (SKKU) (Korea), 3. Pennsylvania State University (United States of America), 4. Global Frontier Center for Multiscale Energy Systems)

[Th1-P51-57]

Enhancing durability and performance in photovoltaic cells through guanidinium-based quasi-2D halide perovskites

Matthew Bamidele[1], Tai Nguyen[1], *DO YOUNG KIM[1] (1. Oklahoma State University (United States of America))

[Th1-P51-58]

Thermodynamic stability and trapping activity in Ge-based perovskites

*Qing Wang[1], Satoshi Iikubo[1] (1. Kyushu University (Japan))

[Th1-P51-59]

Compatibility and charge carrier dynamics of p-i-n structured perovskite solar cells using hybrid deposition methods

*Pratibha Giri[1,2], J.P. Tiwari[1,2] (1. Academy of scientific and Innovative Research (India), 2. CSIR-National Physical Laboratory (India))

[Th1-P51-60]

Aqueous solution based TiO_2 films for perovskite solar cells

*Itaru Raifuku[1], Xianhuan Yu[2], Yoji Torii[2], Hidenori Kawanishi[2], Yukiharu Uraoka[2] (1. Aoyama Gakuin University (Japan), 2. Nara Institute of Science and Technology (Japan))

Sub area 1-1: Policy, Market, Finance and Deployment | Area1: PV in Sustainable Energy System：Sub area 1-1: Policy, Market, Finance and Deployment

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[Th2-P11] Sub area 1-1: Policy, Market, Finance and Deployment

[Th2-P11-01]

Probabilistic framework for techno-economic assessment of photovoltaic system using site-adapted solar resource data

*Elvina Faustina Dhata[1,2], Chang Ki Kim[1,2], Hyun-Goo Kim[1,2] (1. Korea Institute of Energy Research (Korea), 2. University of Science and Technology (Korea))

[Th2-P11-02]

A Revenue Model Framework for Solar PV Forecasting using Analog Ensemble Technique in the Context of South Korea

*Federico Enriquez del Pozo Jr.[1,2,3], Chang Ki Kim[1,2], Hyun-Goo Kim[1,2], Chang-yeol Yun[1] (1. Korea Institute of Energy Research (Korea), 2. University of Science and Technology (Korea), 3. Philippine Department of Science and Technology - Industrial Technology Development Institute (Philippines))

[Th2-P11-03]

RELATIONSHIP BETWEEN ECONOMIC GROWTH AND SUSTAINABLE ENERGY IN G7 NATIONS

*Deepti Deepti[1], Pawan Kumar[2], Kamaljit Singh[3], Sushma Sharma[4], Mohit Janoiya[5] (1. SRM University (India), 2. SRM University (India), 3. SRM University (India), 4. SRM University (India), 5. Bureau of Indian Standards (India))

[Th2-P11-04]

Reuse of silicon PV modules: What is possible considering both technology and economics?

*Rabin Basnet[1], Laura Jones[2], Marco Ernst[1], Michelle McCann[3], Daniel Macdonald[1] (1. The Australian National University (Australia), 2. Circular PV Alliance (Australia), 3. PV Lab Australia (Australia))

[Th2-P11-05]

Scenario Analysis of Electricity Demand Growth in Rural Areas for the Evaluation of the Reliability and Sustainability of an Off-grid System: A Case Study in Lao PDR

*Anouluck Norasing[1], Naoya Abe[1] (1. Tokyo Institute of Technology (Japan))

[Th2-P11-06]

Analysis of the circularity for PV recycling aiming at net-zero in 2050

*Tik Lun Leung[1,2], Anita Ho-Baillie[1,2,3] (1. School of Physics, The University of Sydney, Sydney, NSW 2006, Australia (Australia), 2. Sydney Nano, The University of Sydney, Sydney, NSW 2006, Australia (Australia), 3. Australian Centre for Advanced Photovoltaics (ACAP), School of Photovoltaic and Renewable Energy Engineering, University of New South Wales, Sydney, NSW 2052, Australia (Australia))

[Th2-P11-07]

PV Development in Thailand to Mobilize Energy Transitions and Net Zero Emission Target

*Amornrat Limmanee[1], Dusit Kruangam, Songpakit Kaewniyompanit (1. National Energy Technology Center (ENTEC) (Thailand))

[Th2-P11-08]

Optimising Electrical, Financial, and Environmental Outcomes for Photovoltaic Module Lifecycle Management: An Automated Computational Approach

*Rama Sharma[1], Felix O'Kearney[1], Brendan Wright[1], Ziv Hameiri[1] (1. The University of New South Wales (Australia))

[Th2-P11-09]

Feasibility and Sustainability of Hybrid Solar-Hydro Power Systems in Remote Areas: Case Study of Baan Song Kwae Phatthana, Chiang Rai Province

*Thanyalak Gatesopa[1], Siripha Junlakarn[2] (1. Graduate School, Chulalongkorn University (Thailand), 2. Energy Research Institute, Chulalongkorn University (Thailand))

[Th2-P11-10]

Cost Benefit Analysis for a Climate-Controlled Greenhouse with a High Proportion of Local Renewable Energy

*Jorge Solis[1], David Olsson[2], Magnus Nilsson[2] (1. Karlstad University (Sweden), 2. Glava Energy Center (Sweden))

[Th2-P11-11]

Forecast on the PV installed capacity in Japan toward 2035

*Koichi Sugibuchi[1], Naofumi Ezawa[1], Haruki Yamaya[1], Satsuki KANAI[1], Yoshiyuki OHHASHI[1], Osamu Ikki[1] (1. RTS Corporation (Japan))

[Th2-P11-12]

Proposal for the Japan’s solar PV policy to accelerate the installation

*Yuhei Tsukamoto[1] (1. Renewable Energy Institute (Japan))

[Th2-P11-13]

A Multi-Level Approach: Examining P2P Energy Trading for Solar Adoption in Thailand

Phimsupha Kokchang[1], *Siripha Junlakarn[1] (1. Energy Research Institute, Chulalongkorn University (Thailand))

[Th2-P11-14]

Solar Photovoltaics Policy and Financial Support in India Through Department of Science and Technology

*Vineet Saini[1], Vamsi Krishna Komarala[2] (1. Department of Science and Technology (India), 2. indian Institute of Technology Delhi (India))

[Th2-P11-15]

Thailand's Rooftop Solar Potential: Unlocking Investment Through Policy

*Siripha Junlakarn[1], Supawan Saelim, Phimsupha Kokchang[1], Aksornchan Chaianong[2], Peetiphat Tirakiat[3] (1. Energy Research Institute, Chulalongkorn University (Thailand), 2. Friedrich-Alexander-Universität Erlangen-Nürnberg (FAU) (Germany), 3. Faculty of Engineering, Department of Electrical Engineering, Chulalongkorn University (Thailand))

[Th2-P11-16]

Land Use of Installation Site for Photovoltaic Power Generation Systems in Fukushima

*Takeyoshi Kato[1], Chiyori Tanaka Urabe[1] (1. Nagoya University (Japan))

[Th2-P11-17]

Decarbonizing residential houses in Bali, Indonesia with the integration of rooftop photovoltaics and electric vehicles

Ratu Keni Atika[1], *Takuro Kobashi[1] (1. Tohoku University (Japan))

[Th2-P11-18]

Prospective Life Cycle Assessment for Perovskite Solar Cells

*Ruri Hashimoto[1], Ryousuke Ishikawa[2], Norihiro Itsubo[1] (1. Waseda University (Japan), 2. Tokyo city University (Japan))

[Th2-P11-19]

Potential of non-FIT business models in Japanese PV market:Self consumption and Corporate PPAs

*Naofumi Ezawa[1], Yoshiyuki Ohashi[1], Koichi Sugibuchi[1], Haruki Yamaya[1], Satsuki Kanai[1], Osamu Ikki[1] (1. RTS Corporation (Japan))

[Th2-P11-20]

Optimization PV power bidding strategies on spot and balancing markets by applying genetic algorithm

*Bo Jie[1], Jindan Cui[1], Xue Fang[1], Takashi Oozeki[2], Yuzuru Ueda[1] (1. Tokyo University of Science (Japan), 2. National Institute of Advanced Industrial Science and Technology (AIST) (Japan))

[Th2-P11-21]

Multi-climate Zone Modelling & Forecasting of China End-of-life PV

*Junyu Xu[1], Fang LV[2], Jun Ma[3], Dengyuan Song[3], Jinhong Dai[4] (1. ECOPV PV RECYCLE INDUSTRY DEVELOPMENT CENTER, 2. Institute of Electrical Engineering of the Chinese Academy of Sciences, 3. DAS Solar Co., Ltd., 4. PV Committee of China Green Supply Chain Alliance)

Sub area 4-3: III-V High-efficiency Devices | Area4: Thin-film Photovoltaics and Modules：Sub area 4-3: III-V High-efficiency Devices

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[Th2-P43] Sub area 4-3: III-V High-efficiency Devices

[Th2-P43-01]

Development of large-area GaAs-based tandem solar cells using Modified smart stack

*Kikuo Makita[1], Hidenori Mizuno[1], Yukiko Kamikawa[1], Ryuji Oshima[1], Yasushi Syoji[1], Shogo Ishizuka[1], Takeyoshi Sugaya[1] (1. Advanced Industrial Science and Technology (AIST) (Japan))

[Th2-P43-02]

Enhancing surface roughness and optimizing bonding characteristics with appropriate metallization for high-efficiency III-V/Si tandem solar cells

*Junhan Bae[1], Mengmeng Chu[1], Hasnain Yousuf[1], Muhammad Quddamah Khokhar[2], Polgampola Chamani Madara[2], Min-Kyung Shin[2], Sangheon Park[3], Junsin Yi[4] (1. Sungkyunkwan University (Korea), 2. Sungkyunkwan University (Korea), 3. Sungkyunkwan University (Korea), 4. Sungkyunkwan University (Korea))

[Th2-P43-03]

Development of Ultra-thin III-V Photovoltaic Devices for High-Efficiency Transparent Application

*Kentaroh Watanabe[1], Hassanet Sodabanlu[1], Meita Asami[1], Yoshiaki Nakano[1], Masakazu Sugiyama[1] (1. The University of Tokyo (Japan))

[Th2-P43-04]

Application-oriented high-efficiency quantum well superlattice thin-film triple-junction solar cells

*Menglu yu Yu[1,2], JunHua Long[2], ShuLong Lu[2], QiangJian Sun[2], ZhiTao Chen[2,1], XiaoXu Wu[2,1] (1. University of Science and Technology of China (China), 2. Suzhou Institute of Nano-Tech and Nano-Bionics, Chinese Academy of Sciences (China))

[Th2-P43-05]

Performance analysis of space solar cells under increased irradiance conditions

*Yoshiyuki Murakami[1], Teppei Okumura[1], Tetsuya Nakamura[1], Daisuke Sato[2], Taishi Sumita[1] (1. Japan Aerospace Exploration Agency (Japan), 2. Nagaoka University of Technology (Japan))

[Th2-P43-06]

Development of Si Tandem Solar Cells for Vehicle Integrated Photovoltaics

*Masafumi Yamaguchi[1], Tatsuya Takamoto[2], Kenichi Okumura[3], Takashi Mabuchi[3], Kyotaro Nakamura[1], Ryo Ozaki[1], Nobuaki Kojima[1], Yoshio Ohshita[1] (1. Toyota Technological Institute (Japan), 2. Sharp Corporation (Japan), 3. Toyota Motor Coprporation (Japan))

[Th2-P43-07]

The Impact of Si/Be Co-doping on the Performance of InGaAs Thermophotovoltaic Cells

*Zhao Huyin[1,2], Li Xuefei[2], Long Junhua[2], Lu Shulong[2] (1. University of Science and Technology of China (China), 2. Suzhou Iinstitute of Nano-Tech and Nano-Bionics (SINANO), Chinese Academy of Sciences (China))

[Th2-P43-08]

Enhanced reflectivity of InGaAs solar cells using patterned dielectric back contacts for thermophotovoltaic applications

*Masaki Date[1,2], Ryuji Oshima[2], Yasushi Shoji[2], Hitoshi Sai[2], Makoto Shimizu[3], Takeyoshi Sugaya[2], Shuhei Yagi[1], Hiroyuki Yaguchi[1] (1. Saitama University (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan), 3. Graduate School of Engineering, Tohoku University (Japan))

[Th2-P43-09]

Is the Availability of III-V Materials a Real Concern?

*Jessica Yajie Jiang[1], Ivan Perez-Wurfl[1], Martin Green[1], Ned Ekins-Daukes[1] (1. UNSW (Australia))

[Th2-P43-10]

Comprehensive study of optoelectronic reciprocity relation and diode ideality factor under light irradiation through EL and PL measurements

*Meita Asami[1], Kentaroh Watanabe[1], Yoshiaki Nakano[2], Masakazu Sugiyama[1] (1. RCAST, The University of Tokyo (Japan), 2. School of Engineering, The University of Tokyo (Japan))

[Th2-P43-11]

Blueshift of the photoluminescence peak energy as a function of excitation power in an InGaAs/GaAsP wire-on-well quantum structure

*Kaiya Nakajima[1], Nana Taketa[1], Meita Asami[2], Masakazu Sugiyama[2], Tetsuo Ikari[1], Atsuhiko Fukuyama[1] (1. University of Miyazaki (Japan), 2. Research Center for Advanced Science and Technology, The University of Tokyo (Japan))

[Th2-P43-12]

Analyses of Luminescence Coupling in ELO thin-film tandem solar cells

*Sota Itsubo[1], Dairoku Inaba[1], Naoya Miyashita[1], Koichi Yamaguchi[1] (1. University of Electro-Communications (Japan))

[Th2-P43-13]

Growth and evaluation of GaAsN films with different N distribution grown by atomic layer epitaxy

*Hayato Koto[1], Masahiro Kawano[1], Hidetoshi Suzuki[1] (1. University of Miyazaki (Japan))

Sub area 5-1: Perovskite Photovoltaics | Area5 : Perovskite and Emerging Photovoltaics：Sub area 5-1: Perovskite Photovoltaics

Thu. Nov 14, 2024 11:00 AM - 12:30 PM JST | Thu. Nov 14, 2024 2:00 AM - 3:30 AM UTC PS-11/Multipurpose Hall (1F)

[Th2-P51] Sub area 5-1: Perovskite Photovoltaics

[Th2-P51-01]

Organic-inorganic perovskite solar cells with asymmetric diamines (II) -Control of orientation-

*HIRONA Kobayashi[1], Masatoshi Yanagida[2], Yasuhiro Shirai[2], Daizo Hishida[1], Masahiro Yoshizawa-Fujita[1], Masahiro Rikukawa[1], Yuko Takeoka[1] (1. Sophia University (Japan), 2. NIMS (Japan))

[Th2-P51-02]

A structural study of (202) oriented two-dimensional perovskite $(C_4H_9NH_3)_2(CH_3NH_3)Pb_2I_7$ films by in-plane x-ray diffraction measurements

*Norimitsu Yoshida[1], Fumiya Sano[1], Haruya Mori[1], Yuya Futamura[1], Yasushi Sobajima[1], Hitoe Habuchi[2] (1. Gifu University (Japan), 2. National Institute of Technology, Gifu College (Japan))

[Th2-P51-03]

Band-bending-induced enhancement of perovskite solar cell performance via vitamin A-based passivation

*James Caseria Solano[1], Itaru Raifuku[1,2], Hidenori Kawanishi[1], Yukiharu Uraoka[1] (1. Nara Institute of Science and Technology (Japan), 2. Aoyama Gakuin University (Japan))

[Th2-P51-04]

Defects evaluation of perovskite solar cells using electrical and optical characterization methods

*Koki Kimura[1], Tatsuro Kawamura[1,2], Itaru Raifuku[1], Yasuaki ishikawa[1] (1. Aoyama Gakuin university (Japan), 2. EneCoat Technologies Co., Ltd. (Japan))

[Th2-P51-05]

Advanced additive engineering for high-performance wide-bandgap tin perovskite via 4-phenyl-thiosemicarbazide

*SungWon Cho[1], Padmini Pandey[1], Dong-Won Kang[1] (1. Chung-Ang University (Korea))

[Th2-P51-06]

Predicting the Quality of Photovoltaic Materials in Lead-Reduced Perovskite Solar Cells Using Photo-Assisted Kelvin Probe Force System

*Ming-Chung Wu[1,2], Ying-Han Liao[1], Shun-Hsiang Chan[1], Shih-Hsuan Chen[1], Yuan-Yu Chiu[1], Yin-Hsuan Chang[1], Ting-Han Lin[1,2], Ku-Mun Lee[1,2] (1. Department of Chemical and Materials Engineering, Chang Gung University (Chinese Taipei), 2. Center for Sustainability and Energy Technologies, Chang Gung University (Chinese Taipei))

[Th2-P51-07]

Enhancing long-term operational stability of pseudo-halide based perovskite solar cells

*Farhan Yousuf[1], Raja Rajendran[1], Chen Fu Lin[1], Peter Chen[1,2,3,4] (1. Department of Photonics, National Cheng Kung University (Chinese Taipei), 2. Core-Facility Center (CFC), National Cheng Kung University (Chinese Taipei), 3. Hierarchical Green-Energy Materials (Hi-GEM) Research

Center, National Cheng Kung University (Chinese Taipei), 4. Program on Key Materials, Academy of Innovative Semiconductor and Sustainable Manufacturing, National Cheng Kung University (Chinese Taipei))

[Th2-P51-08]

Stabilizing Perovskite Precursor Solution via Chemical Approach

*Tanakorn Kittikool[1], Ladda Srathongsian[1], Pongsakorn Kanjanaboos[1,2] (1. School of Materials Science and Innovation, Faculty of Science, Mahidol University (Thailand), 2. Center of Excellence for Innovation in Chemistry (PERCH CIC), Ministry of Higher Education, Science, Research and Innovation (Thailand))

[Th2-P51-09]

TiO_2/SnO_2 electron transport bilayer prepared by chemical bath deposition for perovskite solar cells

*Xianhuan Yu[1], Itaru Raifuku[2], Hidenori Kawanishi[1], Yukiharu Uraoka[1] (1. Nara Institute of Science and Technology (Japan), 2. Aoyama Gakuin University (Japan))

[Th2-P51-10]

Wide bandgap, mixed-halide perovskites: Correlating halide segregation and cell performance

*Richard Murdey[1], Ai Shimazaki[1], Ryuji Kaneko[1], Minh Anh Truong[1], Tomoyo Nakamura[1], Atsushi Wakamiya[1] (1. Kyoto University (Japan))

[Th2-P51-11]

Light-induced phase separation in mixed halide perovskite thin films revealed by hyperspectral imaging spectroscopy

Yusuke Daikoku[1], Takumi Yamada[1], Ai Shimazaki[1], Tomoya Nakamura[1], Atsuhi Wakamiya[1], *Yoshihiko Kanemitsu[1] (1. Kyoto University (Japan))

[Th2-P51-12]

Single-isomer bis(pyrrolidino)fullerenes as electron transport materials for tin halide perovskite solar cells

*Tomoya Nakamura[1], Takabumi Nagai[2], Yuki Miyake[1], Takumi Yamada[1], Yoshihiko Kanemitsu[1], Minh Anh Truong[1], Richard Murdey[1], Atsushi Wakamiya[1] (1. Institute for Chemical Research, Kyoto University (Japan), 2. HARVES Co., Ltd. (Japan))

[Th2-P51-13]

Automation of Perovskite Solar Cell Fabrication via the Antisolvent Method and the Effect of Residual PbI_2 on Reproducibility

*Naoto Eguchi[1], Kohei Yamamoto[1], Hiroyuki Kanda[1], Santa Mondal[1], Takurou N Murakami[1] (1. National Institute of Advanced Industrial Science and Technology (Japan))

[Th2-P51-15]

Understanding the mechanism of organic additive to fabricate stable co-evaporated CsPbI3 perovskite solar cells

*Sangwon Lee[1], Seok-Hyun Jeong[1], Sujin Cho[1], Jae-Keun Hwang[1], Wonkyu Lee[1], Solhee Lee[1], Dowon Pyun[1], Jiyeon Nam[1], Ji-Seong Hwang[1], Youngmin Kim[1], Jihyun Jang[1], Youngho Choe[1], Yoonmook Kang[1], Donghwan Kim[1], Hae-Seok Lee[1] (1. korea university (Korea))

[Th2-P51-16]

Light-induced ESR study on charge states in PEAI-passivated perovskite solar cells

*Liqi Liu[1], Seira Yamaguchi[1,2], Yizhou Chen[1], Atsushi Sato[1], Kazuhiro Marumoto[1,2,3] (1. Department of Materials Science, University of Tsukuba (Japan), 2. Consortium of Organic-Inorganic Quantum Spin Science and Technology, University of Tsukuba (Japan), 3. Tsukuba Research Center for Energy Materials Science , University of Tsukuba (Japan))

[Th2-P51-17]

Device simulation on $CsPbBr_3$ photovoltaic power converter using ZnMgO buffer layer and Si-doped GaN transparent conducting layer

*Yuejie TAN[1], Lei Meng[2], Shinsuke Miyajima[1] (1. Tokyo Institute of Technology (Japan), 2. Beijing University of Technology (China))

[Th2-P51-18]

Hole transport layer-free carbon electrode-based perovskite solar cells

Huashang Rao[1], *Xinhua Zhong[1], Zhenxiao Pan[1] (1. South China Agricultural University (China))

[Th2-P51-19]

Defect passivation effect of TEACl on wide band gap p-i-n perovskite solar cell

*Enkhjargal Enkhbayar[1], Namuundari Otgontamir[1], SeongYeon Kim[2], Jinho Lee[1], JunHo Kim[1] (1. Incheon National University (Korea), 2. Daegu Gyeongbuk Institute of Science (Korea))

[Th2-P51-20]

Phenolphthalein: Small-molecule additive for high performance and ambient-air-stable $FAPbI_3$ perovskite solar cells

*Yasuhiko HAYASHI[1], Hytham Elbohy[2], Ding Haoyu[1], Hiroo Suzuki[1], Takeshi Nishikawa[1], Aung Ko Ko Kyaw[3] (1. Okayama University (Japan), 2. Damietta University (Egypt), 3. Southern University of Science and Technology (China))

[Th2-P51-21]

Hole Transport Materials with Green Solvent Processed Based On Dopant-Free Pyrazine for Perovskite Solar Cells

*Bohyeon Cho[1], Jinsoo Yoo[1], Hyerin Kim[1], Sung-Ho Jin[1] (1. Pusan National University (Korea))

[Th2-P51-22]

Interface engineering on wide-bandgap p-i-n perovskite for tandem solar cells

*Seongwook Yun[2], Enkhjargal Enkhbayar[1], TaeEi Hong[1], JunHo Kim[1,2] (1. Department of Physics, Incheon National University (Korea), 2. Department of intelligent semiconductor engineering, Incheon National University (Korea))

[Th2-P51-23]

Tin oxide nanoparticle as hole transporting layer for highly stable Sn-based perovskite solar cells

*Jannatul Ferdous[1,2,3], Wipakorn Jevasuwan[1], Md. Emrul Kayesh[2], Ashraful Islam[2], Naoki Fukata[1] (1. Research Centre for Materials Nanoarchitectonics, National Institute for Materials Science (NIMS) (Japan), 2. Photovoltaic Materials Group, Center for Green Research on Energy and Environmental Materials, National Institute for Materials Science (NIMS) (Japan), 3. Graduate School of Pure and Applied Sciences, University of Tsukuba (Japan))

[Th2-P51-24]

Impact of alkali metal hydroxide treatment on perovskite solar cell performance

Yuki Fujita[1], *Toshinori Matsushima[1] (1. Kyushu University (Japan))

[Th2-P51-25]

Investigating the Thermal Stability of Formamidinium-Cesium Lead Halide Perovskite Solar Cells Fabricated under Air Ambient Conditions

*Binita Boro[1], Snehangshu Mishra[2], Paulomi Singh[1], Shailendra Kumar Varshney[4], Basudev Lahiri[4], Trilok Singh[3] (1. School of Nano Science and Technology, Indian Institute of Technology Kharagpur, 721302, India (India), 2. School of Energy Science and Engineering, Indian Institute of Technology Kharagpur, 721302, India (India), 3. Department of Energy Science and Engineering, Indian Institute of Technology Delhi, Hauz Khas, New Delhi 110016, India (India), 4. Department of Electronics and Electrical Communication Engineering, Indian Institute of Technology Kharagpur, 721302, India (India))

[Th2-P51-26]

Facile Bar-coating Process for All-inorganic Perovskite Layers: Ink Additives and their Surface Modification effects.

*Rio Shimizu[1], Kenichi Oyaizu[1], Hiroyuki Niside[1], Takeo Suga[1] (1. Waseda university (Japan))

[Th2-P51-27]

Synthesis of (9-triptycyl)tin halide complex and its application to tin halide perovskite solar cells

*Akio Hasegawa[1], Chien-Yu Chen[1], Tomoya Nakamura[1], Minh Anh Truong[1], Richard Murdey[1], Atsushi Wakamiya[1] (1. Institute for Chemical Research, Kyoto University (Japan))

[Th2-P51-28]

Compositional engineering of double-cation single-halide perovskite for efficient solar cells fabricated in air ambient conditions

*Mrittika Paul[1], Binita Boro[2], Amreesh Chandra[3], Trilok Singh[4] (1. School of Energy Science and Engineering, Indian Institute of Technology Kharagpur, 721302, India (India), 2. School of Nano Science and Technology, Indian Institute of Technology Kharagpur, 721302, India (India), 3. Department of Physics, Indian Institute of Technology Kharagpur, 721302, India (India), 4. Semiconductor Thin Films and Emerging Photovoltaic Laboratory, Department of Energy Science and Engineering, Indian Institute of Technology Delhi, Hauz Khas, New Delhi 110016, India (India))

[Th2-P51-29]

Effects of Voids within Copper Iodide Hole Transport Layer for Bonding Fabrication of Perovskite Solar Cells through Hot-Pressing Method

*Auttaphon Ploypradit[1], Masao Isomura[1], Koji Tomita[1], Tetsuya Kaneko[1] (1. Tokai University (Japan))

[Th2-P51-30]

Side-Chain Engineering of Thienothiophene-containing Polymer as Hole transporting Materials for All inorganic Peorvskite Solar cell.

*Yu Sakai[1], Kenichi Oyaizu[1], HIroyuki NIshide[1], Takeo Suga[1] (1. Waseda University (Japan))

[Th2-P51-31]

Optimization of mixed-cation mixed-halide perovskites for indoor light harvesting

*Snehangshu Mishra[1], Binita Boro[1], Trilok Singh[1,2] (1. Indian Institute of Technology Kharagpur (India), 2. Indian Institute of Technology Delhi (India))

[Th2-P51-32]

Perovskite solar cells based on low-temperature carbon electrodes

*Yiming Li[1], Bingcheng Yu[1], Dongmei Li[1], Qingbo Meng[1] (1. The Institute of Physics, Chinese Academy of Sciences (China))

[Th2-P51-33]

Revealing the effect of the working pressure on the properties of sputtered PbI_2 film for its photovoltaic application

*Wonkyu Lee[1], Jae-Keun Hwang[1], Youngmin Kim[2], Ji-Seong Hwang[1], Seok-Hyun Jeong[1], Youngho Choe[3], Yoonmook Kang[2], Hae-Seok Lee[2], Donghwan Kim[1] (1. Department of Materials Science and Engineering, Korea University (Korea), 2. Graduate School of Energy and Environment (KU-KIST Green School), Korea University (Korea), 3. Institute of Energy Technology, Korea University, (Korea))

[Th2-P51-34]

Enhanced performance of mixed Sn-Pb perovskite solar cells via $Sn(SCN)_2$ passivation

*Seongju Park[1], Byungha Shin[1] (1. Korea Advanced Institute of Science and Technology (Korea))

[Th2-P51-36]

Enhancing efficiency and stability of perovskite solar cells in indoor environments through interface treatment using a quinoxaline-based small molecule

*DONG HYUN LEE[1], SEOK WOO LEE[2], MIN JUN CHOI[1], JIN HEE HEO[3], DONG WOOK CHANG[2], JONG H. KIM[1] (1. Ajou University (Korea), 2. Pukyong National University (Korea), 3. Korea Institute of Materials Science (KIMS) (Korea))

[Th2-P51-37]

Enhanced perovskite solar cell stability and efficiency via adding multi-functional water absorbent

*Wenxi Ji[1], Xiafei Cheng[1], Ming'ao Pan[1], Xinmiao Niu[1], Jiaqi Du[1], Longgui Zhang[1], Bo Song[2], Yi Zhou[2] (1. Sinopec (Beijing) Research Institute of Chemical Industry Co., Ltd. (China), 2. Soochow University (China))

[Th2-P51-38]

Spray Coated Perovskites for Large Area Perovskite-Si Tandem Solar Cell Device Fabrication

*Calum McDonald[1], Abduheber Mirzehmet[1], Hitoshi Sai[1], Takurou N Murakami[1], Takuya Matsui[1] (1. AIST (Japan))

[Th2-P51-39]

Boosting the performance of tin halide perovskite solar cells with metal halide electron interfacial layers

*Chien-Yu Chen[1], Fuyuki Harata[1], Tomoya Nakamura[1], Minh Anh Truong[1], Richard Murdey[1], Atsushi Wakamiya[1] (1. Kyoto University (Japan))

[Th2-P51-40]

Semitransparent tin halide perovskite solar cells with indium zinc oxide top electrode

*Chihiro Sakamoto[1], Tomoya Nakamura[1], Noboru Ohashi[1], Fuyuki Harata[1], Chien-Yu Chen[1], Minh Anh Truong[1], Richard Murdey[1], Atsushi Wakamiya[1] (1. Kyoto University (Japan))

[Th2-P51-41]

Hole-collecting monolayer materials with squaraine skeletones for perovskite solar cell

*Shota Hira[1], Minh Anh Truong[1], Nakamura Tomoya[1], Richard Murdey[1], Atsushi Wakamiya[1] (1. Institute for Chemical Research, Kyoto University (Japan))

[Th2-P51-42]

Improved Performance of Additive-Passivated Perovskite Solar Cells Fabricated by the DMF-free Vacuum Quenching Method

*Shota Araki[1], Toshimitsu Mochizuki[1], Hidetaka Takato[1], Katsuto Tanahashi[1] (1. National Institute of Advanced Industrial Science and Technology (Japan))

[Th2-P51-43]

The introduction of the Dry Process for TCO, HTL and ETL by a low damage four facing targets sputtering cathode on perovskite photovoltaic

*Yoshiki Nishida[1], Tetsuya Saruwatari[1] (1. Keihin Ramtech Co.,Ltd. (Japan))

[Th2-P51-44]

Versatile Ambiphilic Interface Molecule for Boosting Efficiency and Stability of Perovskite Solar Cells under Various Illumination Conditions

*Min Jun Choi[1], Seok Woo Lee[2], So Jeong Shin[1], Hong Jae Shim[3], Sang Eun Yoon[1], Jae Sung Yun[3,4], Dong Wook Chang[2], Jong H. Kim[1] (1. Ajou University (Korea), 2. Pukyong National University (Korea), 3. University of New South Wales (Australia), 4. University of Surrey (UK))

[Th2-P51-45]

Close space sublimation of $CsPbBr_3$ films for photovoltaic device applications

*Kyosuke Yawata[1], Shinsuke Miyajima[1] (1. Tokyo Institute of Technology (Japan))

[Th2-P51-46]

Minority carrier lifetime in $CH_3NH_3PbI_3$ perovskite films with doped amorphious Si

*CHENXI LI[1], Tu Huynh Thi Cam[1], Keisuke Ohdaira[1], Peng Liu[2], Md. Shahiduzzaman[2], Tetsuya Taima[2] (1. Japan Advanced Institute of Science and Technology (Japan), 2. Kanazawa University (Japan))

[Th2-P51-47]

Application of the transparent electrode material In2O3:Ti to MAPbI3-based thin film solar cells

*Masataka Taya[1], Yuga Nagakusa[1], Kouhei Kojima[1], Norimitsu Yoshida[1], Yasushi Sobajima[1] (1. Gifu University (Japan))

[Th2-P51-48]

Effects of MACl as a Key Additive for Stable and High-efficiency Perovskite Solar Cells via a Two-step Process

*Yeonwoo Park[1], Jae Ho Yun[1] (1. Korea Insitute of Energy Technology (Korea))

[Th2-P51-49]

Fabrication of $CsPb(Br_{0.45}Cl_{0.55})_3$ photovoltaic power converters for optical wireless power transmission systems using NiO_x hole transport layer

*Atsuto Watanabe[1], Yosuke Abe[1], Takahito Nishimura[1], Shinsuke Miyajima[1] (1. Tokyo Institute of Technology (Japan))

[Th2-P51-50]

Strategic Method for Achieving Uniform Tin Oxide Layer Using a Conjugated Small Molecular Dispersant to Enhance Efficiency of Perovskite Solar Cells in Versatile Light Environments

*Hyewon Chun[1], Gyeong G. Jeon[1], So Jeong Shin[1], Min Jun Choi[1], Jong H. Kim[1] (1. Ajou University (Korea))

[Th2-P51-51]

Nanoscale Local Contacts Enable Inverted Inorganic Perovskite Solar Cells with 20.8% Efficiency

*Shanshan Qi[1], Sanlong Wang[1], Pengyang Wang[1], Ying Zhao[1], Xiaodan Zhang[1] (1. Nankai University (China))

[Th2-P51-52]

Improving $FAPbBr_3$ Perovskite Crystal Quality via Additive Engineering for High Voltage over Solar Cell over 1.5 V

*Tae Min Kim[1] (1. Korea University (Korea))

[Th2-P51-53]

Enhancing Perovskite Solar Cell Performance through Optimization of 2D/3D Perovskite Layers with PEAX (X = Cl, Br, and I)

*Naoyuki Shibayama[1] (1. Toin University of Yokohama (Japan))

[Th2-P51-54]

Decoding the hetero-atom driven crystallinity and energy transfer in perovskite solar cells

*Muhammed P.U. Haris[1], Amir Al-Ahmed[1], Atif AlZahrani[1] (1. Interdisciplinary Research Center for Sustainable Energy Systems (IRC-SES), King Fahd University of Petroleum & Minerals (KFUPM), Dhahran (Saudi Arabia))

[Th2-P51-55]

Bridging the Gap; Scalable Research in Perovskite-based Photovoltaics from Lab to Industry.

*César Omar Ramírez Quiroz[1] (1. FOM Technologies A/S (Denmark))

[Th2-P51-56]

Sustainable perovskite photovoltaics: Advancing with green halide chemistry and LCA insights

*Christoph Bohr[1], Tim Ludwig[1], Robert Frohnhoven[1], Senol Öz[1], Amani Maalouf[2], Tobechi Okoroafor[2], Shahaboddin Resalati[2] (1. Solaveni GmbH (Germany), 2. Oxford Brookes University (UK))

[Th2-P51-57]

Advancing perovskite solar cell stability with organic sulfonium cations

Appiagyei Ewusi Mensah[1], *Francis Kwaku Asiam[1], ASHOK KUMAR KALIAMURTHY[1], Junyeong Ryu[1], Farihatun Jannat Lima[1], Jae-Joon Lee[1] (1. Research Center for Photoenergy Harvesting & Conversion Technology (phct), Department of Energy and Materials Engineering, Dongguk University, Seoul, 04620, Republic of Korea. (Korea))

[Th2-P51-58]

Evolution and effect of PbI_2 on MA and Cs containing FAPI perovskites with different annealing atmospheres.

*Muhammad Uzair Farooq[1], Sevan Gharabeiki[2], Ding Yong[3], Jean-Nicolas Audinot[4], Tom Wirtz[5], Mohammad Khaja Nazeeruddin[6], Susanne Siebentritt[7], Alex Redinger[8] (1. University of Luxembourg (Luxembourg), 2. University of Luxembourg (Luxembourg), 3. École Polytechnique Fédérale de Lausanne (Switzerland), 4. Luxembourg Institute of Science and Technology (Luxembourg), 5. Luxembourg Institute of Science and Technology (Luxembourg), 6. École Polytechnique Fédérale de Lausanne (Switzerland), 7. University of Luxembourg (Luxembourg), 8. University of Luxembourg (Luxembourg))

[Th2-P51-59]

Photodegradation and recovery of perovskite solar cells under one-sun and indoor illumination

*Shahriyar Safat Dipta[1], Qihuan Hu[1], Walia Binte Tarique[1], Ashraful Hossain Howlader[1], Ashraf Uddin[1] (1. University of New South Wales)

[Th2-P51-60]

Surface and bulk defects passivation with mixed flurobenzylammonium halides in chlorideiodide perovskite solar cell

*Ashraful Hossain Howlader[1], Shahriyar Safat Dipta[1], Walia Binte Tarqiue[1], Ashraf Uddin[1] (1. UNSW Sydney)

Sub area 2-1: Integrated PV and Advanced Applications of Photovoltaics | Area2: System Engineering and Field Performance：Sub area 2-1: Integrated PV and Advanced Applications of Photovoltaics

Thu. Nov 14, 2024 2:00 PM - 3:30 PM JST | Thu. Nov 14, 2024 5:00 AM - 6:30 AM UTC PS-11/Multipurpose Hall (1F)

[Th3-P21] Sub area 2-1: Integrated PV and Advanced Applications of Photovoltaics

Session Chair(s):Mitsuru Imaizumi(Sanjo City Univ.)

[Th3-P21-01]

Vibration and resonance of the solar cells inside the PV module: VIPV reliability issues

*Kenji Araki Araki[1], Yasuyuki Ota[1], Kensuke Nishioka[1] (1. University of Miyazaki (Japan))

[Th3-P21-02]

A High Voltage Regulation Grid-tied PV Inverter based on a Series AC Capacitor-CSI-Buck Converter Topology with Grid-fault Ride Through Capacity

Chengye Liao[1], Krit Lertlam[1], Banri Khemkladmuk[1], Sarinya Sala-ngam[1], Kittiwath Jeebkaew[2], Piyapat Panmuang[3], Dhidik Prastiyanto[4], Mohd Azli Salim[5], *Chonlatee Photong[1] (1. Faculty of Engineering, Mahasarakham University (Thailand), 2. Sakon Nakhon Rajabhat University (Thailand), 3. Rajamangala University of Technology Isan (Thailand), 4. Universitas Negeri Semarang (Indonesia), 5. Universiti Teknikal Malaysia Melaka (Malaysia))

[Th3-P21-03]

Development of high-sensitivity neutron detection device using double-sided gadolinium oxide conversion films on silicon solar cells

*Sho Otsuka[1], Yasuki Okuno[1], Tomohiro Kobayashi[1], Yoshie Otake[1] (1. RIKEN (Japan))

[Th3-P21-04]

Design of optical thin films for building-integrated photovoltaics using numerical calculations

*Sou Kubota[1,2], Seiya Watanabe[1], Leo Adachi[1,2], Zhihao Xu[2], Hitoshi Sai[2], Michio Kondo[1,3], Hiroyuki Wada[1] (1. Tokyo Institute of Technology (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan), 3. Waseda University (Japan))

[Th3-P21-05]

GIS- based solar irradiance estimation method in VIPV using DSM and satellite observation data

*Pawita Bunme[1], Hidenori Mizuno[1], Takumi Takashima[1], Takashi Oozeki[1] (1. Renewable Energy Research Center, AIST (FREA) (Japan))

[Th3-P21-06]

Dependence of irradiated laser wavelength on the conversion efficiency of CIGS solar cells

*Moeka Chiba[1], Reo Aoyama[1], Shuntaro Fujii[1], Kyosuke Sato[1], Riku Maeno[1], Shunsuke Shibui[1], Hironori Komaki[2], Hiroaki Nakamura[2], Hiroshi Tomita[2], Takato Ishiuchi[2], Shiro Uchida[1] (1. Chiba Institute of Technology (Japan), 2. Idemitsu Kosan Co., Ltd. (Japan))

[Th3-P21-07]

A development of a corrugated roof tile solar panel in Thailand

*Prasan Pankaew[1] (1. Faculty of Science, Silpakorn University (Thailand))

[Th3-P21-09]

White Building-Integrated Photovoltaics by Covering Textured Surface Glass

*DISONG ZHAO[1], Kaito Shishido[1,2], Zhihao Xu[2], Hitoshi Sai[2], Michio Kondo[1,3], Hiroyuki Wada[1] (1. Tokyo Institute of Technology (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan), 3. Waseda University (Japan))

[Th3-P21-10]

Preparation and Characterization of Photovoltaics with Mica Pigment for Decoration

*PENG GAO[1], Leo Adachi[1], Sou Kubota[1], Zhihao Xu[2], Hitoshi Sai[2], Michio Kondo[3], Hiroyuki Wada[1] (1. Tokyo Institute of Technology (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan), 3. Waseda University (Japan))

[Th3-P21-11]

White Building-Integrated Photovoltaics by Using Nanocellulose Materials

*Leo Adachi[1,2], Takaaki Kasuga[3], Manami Suzuki[1,2], Kota Goto[1,2], Zhihao Xu[2], Hitoshi Sai[2], Masaya Nogi[3], Michio Kondo[4], Hiroyuki Wada[1] (1. Tokyo Institute of Technology (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan), 3. Osaka University (Japan), 4. Waseda University (Japan))

[Th3-P21-12]

Development of Video Processing Technology for Continuous Analysis of Solar Radiation on Vehicles

*Naoki Mukai[1], Kenji Araki[2], Yasuyuki Ota[1,2], Kensuke Nishioka[1,2] (1. Graduate School of Engineering, University of Miyazaki (Japan), 2. GX Research Center, University of Miyazaki (Japan))

[Th3-P21-13]

Field testing of the CPV-Thermal hybrid system for high-efficiency energy harvesting

*Kentaroh Watanabe[1], Meita Asami[1], Takashi Iwasaki[2], Masakazu Sugiyama[1] (1. The University of Tokyo (Japan), 2. Direct Sun Energy Institute Co. Ltd. (Japan))

[Th3-P21-14]

Wavelength dependence of incident laser wavelength of 3-junction InGaAs solar cell for optical fiber power transmission

*Reo Aoyama[1], Moeka Chiba[1], Junichi Suzuki[1], Shunsuke Shibui[1], Kosuke Watanabe[1], Ryota Warigaya[1], Kouichi Akahane[2], Shiro Uchida[1] (1. Chiba Institute of Technology (Japan), 2. National Institute of Information and Communications Technology (Japan))

[Th3-P21-15]

InGaP power converter module under high-power 638 nm laser irradiation of 5W

*Ryusei Takahashi[1], Junichi Suzuki[1], Gin Hirano[1], Reo Aoyama[1], Moeka Chiba[1], Kosuke Watanabe[1], Shunsuke Shibui[1], Masahiro Koga[1], Yuta Nishidate[1], Masaki Ayukawa[2], Masaki Maeda[2], Kazuyuki Iizuka[2], Toshihiko Fukamachi[2], Kouichi Akahane[3], Shiro Uchida[1] (1. Chiba Institute of Technology (Japan), 2. Ushio Inc. (Japan), 3. National Institute of Information and Communications Technology (Japan))

[Th3-P21-16]

An agrivoltaics system using colored photovoltaic modules.

*sasiwimon songtrai[1], Perawut Chinnavornrungsee[2], Vichit Saengsuwan[2], Supoj Sodarat[2], Sirimongkon Sangkhawong[2], Phasapon Manosukritkul[3], Noppadon Nuntawong[1], Kobsak Sriprapha[1] (1. National Electronics and Computer Technology Center (Thailand), 2. National Energy Technology Center (Thailand), 3. King Mongkut's Institute of Technology Ladkrabang Prince of Chumphon Campus (Thailand))

[Th3-P21-17]

Estimating Potential of Solar Cell Installation with Façade of Buildings Considering Technological Innovation Scenarios

*Shuai Wang[1], Masashi Oya[1], Natsuki Otoshi[1], Keisuke Kameda[1], Sergei Manzhos[1], Manabu Ihara[1] (1. Tokyo Institute of Technology (Japan))

[Th3-P21-18]

Portable self-powered solar integrated system: An application for emergency and outdoor perovskite solar cell stability testing

*Chattarin Muensuksaeng[1], Chinnatip Harnmanasvate[2], Jakapan Chantana[3], Rongrong Cheacharoen[4] (1. Department of Physics, Chulalongkorn University (Thailand), 2. International Graduate Program of Nanoscience & Technology, Chulalongkorn University (Thailand), 3. Department of Electrical and Electronic Engineering, Ritsumeikan University, (Japan), 4. Metallurgy and Materials Science Research Institute, Chulalongkorn University (Thailand))

[Th3-P21-19]

Saving charging electricity and frequency by VIPV: PV-powered passenger car

Keiichi Komoto[1], *Ryohei Toyoda[1], Takahiro Kirihara[1] (1. Mizuho Research & Technologies, Ltd. (Japan))

[Th3-P21-20]

Performance Analysis of Vehicle Integrated Photovoltaic System using Total Cross Tied Module

*Keiya Tamada[1], Yasuyuki Ota[1,2], Kyotaro Nakamura[3], Masafumi Yamaguchi[3], Yoshio Ohshita[3], Kenji Araki[2], Kensuke Nishioka[1,2] (1. Granduate School of Engineering, University of Miyazaki (Japan), 2. GX Reserach Center,University of Miyazaki (Japan), 3. Toyota Tech Inst. (Japan))

[Th3-P21-21]

Performance analysis of solar water pumping system on sunny and cloudy days in Indian climatic conditions using bi-facial photovoltaic panels

*Richa Parmar[1], Dr. Jai Prakash[1], Dr. Anmol Saxena[2], Mohd. Adil Faizi[1] (1. National Institute of Solar Energy (India), 2. National Institute of Technology Delhi (India))

[Th3-P21-22]

Output estimation of Vehicle Integrated Photovoltaic modules under actual partial shading condition

*Shoki Hirata[1], Kenji Araki[1,2], Yasuyuki Ota[1,2], Kensuke Nishioka (1. Graduate School of Engineering, University of Miyazaki (Japan), 2. GX Research Center, University of Miyazaki (Japan))

[Th3-P21-23]

Demonstration of radiation-induced color center reduction by light soaking in ceria undoped glass

*Taketo Aihara[1], Tetsuya Nakamura[1], Shin-ichiro Sato[2], Takeshi Ohshima[2], Yuta Matsumoto[3], Hiroshi Yamaguchi[3], Tatsuya Takamoto[3] (1. Japan Aerospace Exploration Agency (Japan), 2. National Institutes for Quantum Science and Technology (Japan), 3. Sharp Energy Solutions Corporation (Japan))

[Th3-P21-24]

BIPV improved risks management solution – Steel use as reliable and durable alternative

*Simon BODDAERT[1], Jean-Pierre REYAL[2], Philippe ALAMY[3] (1. CSTB (France), 2. SEMPERSTYL (France), 3. EnerBIM (France))

[Th3-P21-25]

Rapid Generation of Solar Spectrum with Sensor Photodiode Arrays

*Kaiki Matsubayashi[1], Kenji Araki[1], Yasuyuki Ota[1], Kensuke Nishioka[1] (1. University of Miyazaki (Japan))

[Th3-P21-26]

Power generation characteristics of vertical bifacial PV systems in snowy regions : Experiments and simulations

*Shuto Tsuchida[1], Shuji Ide[2], Shunsuke Korikawa[2], Noboru Yamada[1] (1. Nagaoka university of technology (Japan), 2. Shizen energy Inc. (Japan))

[Th3-P21-27]

Reducing Snow Load Damage in PV Systems with Integrated Heating Technology

*Tadanori Tanahashi[1], Takahiro Chiba[2], Satoru Adachi[3], Hayato Arakawa[3], Yuki Tsuno[1], Kazuaki Ikeda[1], Takashi Oozeki[1] (1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan), 2. Hokkaido University of Science (Japan), 3. National Research Institute for Earth Science and Disaster Resilience (NIED) (Japan))

[Th3-P21-28]

Detecting and analysis of the micro-waviness of the solar cells inside the 3D curved PV module

*Kenji Araki[1], Yasuyuki Ota[1], Shota Matsushita[1], Yuhi Honda[1], Kensuke Nishioka[1] (1. University of Miyazaki (Japan))

[Th3-P21-29]

PV on Heavy Duty Vehicles (HDVS): Implementation Guidelines and Optimum Designs

*Kenji Araki[1], Taiyou Niina[1], Takumi Konuma[2], Makoto Tanaka[3], Yasuyuki Ota[1], Shiro Sakamoto[2], Kensuke Nishioka[1] (1. University of Miyazaki (Japan), 2. Systec (Japan), 3. PVTEC (Japan))

[Th3-P21-30]

Reliability of performance and appearance of colored BIPV modules after outdoor exposure

Kimihiko Saito[2], Michio Kondo[3], Keiichiro Sakurai[4], *Akira Terakawa[1] (1. Photovoltaic Power Generation Technology Research Association (PVTEC) (Japan), 2. Fukushima University (Japan), 3. Waseda University (Japan), 4. National Institute of Advanced Industrial Science and Technology (AIST))

[Th3-P21-31]

Resilience by Battery and Solar Electric Vehicles

*Kenji Araki[1], Soma Kawate[1], Yasuyuki Ota[1], Kensuke Nishioka[1] (1. University of Miyazaki (Japan))

[Th3-P21-32]

Manufacturing Technology and Thermal Analysis of Lightweight Shingled Photovoltaic Module for BIPV

*SEO HEE HWANG[1], JAE HYEONG LEE[1] (1. SungKyunKwan University (Korea))

[Th3-P21-33]

TCAD Simulation and low-temperature fabrication of ultrathin semi-transparent a:Si:H based solar cells for building integrated photovoltaic applications.

Ashish Kumar Patel[1], Manvendra Singh Gangwar[1], Tulisram Madkami[1], Anterdipan Singh[1], *Pratima Agarwal[1] (1. Dept. of Physics, IIT Guwahati (India))

[Th3-P21-34]

Integration of Dye-sensitized Photovoltaics with Smart LED Lighting System for Recycling Unused Light Energy in mW Scale

*Hyeong Cheol Kang[1], Francis Kwaku Asiam[1], Ashok Kumar Kaliamurthy[1], Jae-Joon Lee[1] (1. Research Center for Photoenergy Harvesting & Conversion Technology (phct), Department of Energy and Materials Engineering, Dongguk University, Seoul 04620, Republic of Korea. (Korea))

Sub area 2-2: Field Performance of Photovoltaic Systems | Area2: System Engineering and Field Performance：Sub area 2-2: Field Performance of Photovoltaic Systems

Thu. Nov 14, 2024 2:00 PM - 3:30 PM JST | Thu. Nov 14, 2024 5:00 AM - 6:30 AM UTC PS-12/Multipurpose Hall (1F)

[Th3-P22] Sub area 2-2: Field Performance of Photovoltaic Systems

[Th3-P22-01]

Performance assessment of decommissioned photovoltaic modules from utility-scale solar power plants in Thailand

*Amornrat Limmanee[1], Nuttakarn Udomdachanut[1], Rangson Pluemkamon[1], Saifon Kotesopa[1], Pratan Kosuwan[1], Sampan Sivavorapan[1], Nopphadol Sitthiphol[1] (1. ENTEC, National Science and Technology Development Agency (Thailand))

[Th3-P22-02]

First Approximations for Cleaning of Soil Accumulated at Australian PV Sites

*Abhnil Amtesh Prasad[1], Brendan Wright[1], John Rodriguez[1], Ziv Hameiri[1], Merlinde Kay[1] (1. University of New South Wales (Australia))

[Th3-P22-03]

Investigation of seasonal dust accumulation intensity at four PV power plants surrounded by different types of agricultural areas in a hot and humid climate

*Nattakarn Sakarapunthip[1], Tanokkorn Chenvidhya[1], Surawut Chuangchote[2], Dhirayut Chenvidhya[1], Buntoon Wiengmoon[3], Yaowanee Sangpongsanont[1] (1. CES Solar Cells Testing Center, Pilot Plant Development and Training Institute, King Mongkut's University of Technology Thonburi (Thailand), 2. Department of Tool and Materials Engineering, Faculty of Engineering, King Mongkut's University of Technology Thonburi (Thailand), 3. Department of Physic, Faculty of Science, Naresuan University (Thailand))

[Th3-P22-04]

Mitigating photovoltaic soiling effects: Field evaluation of a potential hydrophobic nano-coating

*Tarik Alkharusi[1], Giuseppe Russo[2], Chandan Pandey[1], Benjamin H. W. Teo[1], Christos N. Markides[1] (1. Imperial College London (UK), 2. University of Naples Federico II (Italy))

[Th3-P22-05]

Characteristics, Compositions, and Effects of Dust Accumulated on PV Panels in Tropical Agricultural Area

Nattakarn Sakarapunthip[1], Tanokkorn Chenvidhya[1], Dhirayut Chenvidhya[1], Krissanapong Kirtikara[1], *Surawut Chuangchote[1] (1. King Mongkut's University of Technology Thonburi (Thailand))

[Th3-P22-06]

Optimizing Power Generation from East-West Oriented Photovoltaic Systems on Industrial Complex Roofs: A Comparative Analysis

*Jeonghun Park[1], Chang-Sik Son[1], Donghyun Hwang[1] (1. Silla University (Korea))

[Th3-P22-07]

On-site PR Testing

*Sicheng Wang[1] (1. Energy Research Institute, NDRC (China))

[Th3-P22-08]

PV Power On-Site Accurate Testing Methods

*Sicheng Wang[1] (1. Energy Research Institute, NDRC (China))

[Th3-P22-09]

Investigating performance indicators for grid-scale photovoltaic power plant in India

*NIKHIL PATTATH GOPI[1], ARUP DHAR[1], RAHUL PACHAURI[1], JAIPRAKASH SINGH[1] (1. National Institute of Solar Energy (India))

[Th3-P22-10]

Optimal weeding scheduling using direct and diffuse irradiances for maximum annual power generation of large-scale photovoltaic power plant

Shigeomi Hara[1], *Kento Sugiyama[1], Masayuki Kawakubo[2] (1. Saga University (Japan), 2. Saga Yoshinogari Solar LLC (Japan))

[Th3-P22-11]

Comparison of used PV degradation of different PV technologies using I-V characteristics

*Tanokkorn Chenvidhya Chenvidhya[1], Buntoon Wiengmoon[2], Yaowanee Sangpongsanont[1], Ballang Muenpinij[1], Manit Seapan[1], Dhirayut Chenvidhya[1] (1. King Mongkut's University of Technology Thonburi (Thailand), 2. Naresuan University (Thailand))

[Th3-P22-12]

Modelling photovoltaic system output using ERA5 reanalysis data validated with high-resolution actual measurements

*Usman Yahaya[1], Dhirayut Chenvidhya[1], Tanokkorn Chenvidhya[1], Yaowanee Sangpongsanont[1], Ballang Muenpinij[1] (1. CES Solar Cells Testing Center, Pilot Plant Development and Training Institute, King Mongkut’s University of Technology Thonburi (Thailand))

[Th3-P22-13]

Annual degradation rates of five PV technologies over 12.5 years in Japan

*Tetsuyuki Ishii[1], Yasuo Chiba[2], Minoru Akitomi[2], Ritsuko Sato[2], Sungwoo Choi[2], Atsushi Masuda[3] (1. Central Research Institute of Electric Power Industry (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan), 3. Niigata University (Japan))

[Th3-P22-14]

How PV panel imaging under snowy conditions can help estimate the performance ratio

*Issam Smaine[1,2], Maxime Darnon[3], Gwenaëlle Hamon[1,2], Jean-François Lerat[1,2] (1. Université de Sherbrooke (Canada), 2. Institut Interdisciplinaire d'Innovation Technologique (Canada), 3. Univ St-Etienne (France))

[Th3-P22-15]

Integrating melting effects in Marion snow loss model

*Mebrahtom Woldelibanos Beraki[1,2], Issam SMAINE [1,2], Maxime Darnon[1,2,3], Jean-François Lerat[1,2], Gwenaëlle Hamon[1,2] (1. 1Institut Interdisciplinaire d’Innovation Technologique (3IT), Université de Sherbrooke, 3000 Boulevard Université, Sherbrooke, Québec J1K OA5, Canada (Canada), 2. Laboratoire Nanotechnologies Nanosystèmes (LN2) - CNRS UMI-3463, Université de Sherbrooke, 3000 Boulevard Université, Sherbrooke, Québec J1K OA5, Canada (Canada), 3. Laboratoire Hubert Curien, Univ St-Etienne (France))

[Th3-P22-16]

Effective irradiance correction for performance loss rate analysis of PV systems

Adham El Zaher[1], *Loic Guillemot[1] (1. TotalEnergies OneTech (France))

[Th3-P22-17]

Analysis of output characteristics of solar modules according to long-term reliability test

*YOUNG-CHUL JU[1], SUK-HWAN KO[1], HYE-MI HWANG[1], WOO-GYUN SHIN[1] (1. KOREA INSTITUTE OF ENERGY RESEARCH (Korea))

[Th3-P22-18]

Module tilt-dependent snow accumulation and shading of photovoltaics in subarctic Sweden

*Alexander Granlund[1], Mattias Lindh[1] (1. RISE Research Institutes of Sweden (Sweden))

[Th3-P22-19]

Correlation analysis on the convective heat transfer coefficient of outdoor solar panels and nearby weather data

*Kenji Kamide[1], Ryoji Funahashi[1], Tomoyuki Urata[1], Katsuto Tanahashi[1] (1. National Institute of Advanced Industrial Science and Technology (AIST) (Japan))

[Th3-P22-20]

Fault diagnosis of PV system using machine learning

*Woogyun Shin[1], Youngchul Ju[1], Hyemi Hwang[1], Sukwhan Ko[1] (1. Korea Institute of Energy Research (Korea))

[Th3-P22-21]

Research on fault diagnosis of photovoltaic array based on current–voltage conversion

*Xiang Chen[1], Kun Ding[1], Meng Jiang[1], Jingwei Zhang[1] (1. College of Mechanical and Electrical Engineering, Hohai University (China))

[Th3-P22-22]

Study of Remote Safety Diagnosis System for DC part of a PV Power Generation Facility

*Yuhsuke Toda[1], Teruo Ikeda[1], Kenji Arimatsu[2] (1. ITES Co.,Ltd. (Japan), 2. Tohoku Electric Power Co.,Inc. (Japan))

[Th3-P22-23]

Failure detection of Photovoltaic system installed in desert climate

Amir A. Abdallah[1], *Maulid M. Kivambe[1], Claudia Buerhop-Lutz[2] (1. Qatar Environment and Energy Research Institute (Qatar), 2. Forschungszentrum Juelich GmbH, Helmholtz Institute Erlangen-Nuernberg for Renewable Energy (Germany))

[Th3-P22-24]

Study The Impact of Lightning-Induced Over Voltages on Photovoltaic System Using a Lightning Impulse Generator

Prakasit Sritakaew[1], *Wuttikai Tammawan[1], Thanet Sriprom[2], Anon Namin[2], Ekkachai Chaidee[1], Wiwat Tippachon[1], Jutturit Thongpron[2], Uthen Kamnarn[2], Kosol Oranpiroj[2], Teerasak Somsak[2], Worrajuk Muangjai[2], Wichet Thipprasert[1] (1. Faculty of Electrical Engineering, Rajamangala University of Technology Lanna (RMUTL) Chiang Rai, Thailand (Thailand), 2. Faculty of Electrical Engineering, Rajamangala University of Technology Lanna (RMUTL) Chiang Mai, Thailand (Thailand))

[Th3-P22-25]

Fault diagnosis of photovoltaic arrays based on distance characterization of I-V curves

*Kun Ding[1], Zenan Yang[1], Xiang Chen[1], Jingwei Zhang[1], Shang Cao[2] (1. College of Mechanical and Electrical Engineering, Hohai University, Changzhou (China), 2. Changzhou Key Laboratory of Photovoltaic System Integration and Production Equipment Technology, Changzhou (China))

[Th3-P22-26]

Remote fault detection method for residential PV systems through comparative analysis

*Yohei Sumikoshi[1], Yuzuru Ueda[1] (1. Tokyo University of Science (Japan))

[Th3-P22-27]

Assessing Degradation Trends of Residential Photovoltaic Systems and Their Drivers Across Australia

Ali Shakiba[1], Abhnil Prasad[1], *Brendan Wright[1], Nargess Nourbakhsh[1], Mike Roberts[1], Ziv Hameiri[1] (1. University of New South Wales (Australia))

[Th3-P22-28]

A comparison of different means for measuring insulation resistance between photovoltaic arrays and the earth: the "self-biased method" and the "low frequency AC current injection technique"

*Takuro Kazama[1,2], Kazuhiko Kato[1,3] (1. University of Tsukuba (Japan), 2. Hikari Trading Co., Ltd. (Japan), 3. National Institute of Advanced Industrial Science and Technology (Japan))

[Th3-P22-29]

Prediction of remaining useful life of photovoltaic array based on extracted model parameters

Shang Cao[1], *Jingwei Zhang[1], Kun Ding[1], Xiang Chen[1], Anees Ur Rehman[2], Zenan Yang[1], Yongjie Liu[3] (1. College of Mechanical and Electrical Engineering, Hohai University (China), 2. College of Agricultural Science and Engineering, Hohai University (China), 3. Changzhou Key Laboratory of Photovoltaic System Integration and Production Equipment Technology (China))

[Th3-P22-30]

Calculation of Photovoltaic Systems Installation Potential in Planted Treesand Prioritizing Suitable Locations using Analytic Hierarchy Process Method

*Sari Takahashi[1], Ryuto Shigenobu[1], Akiko Takahashi[1], Masakazu Ito[1], Masanobu Yoshidomi[2] (1. University of Fukui (Japan), 2. Yoshidomi Electric Co., Ltd. (Japan))

[Th3-P22-31]

Digital-Twins of Utility PV Systems: PVsyst-based Model Limitations and Implications

*Brendan Foster Wright[1], Sijin Wang[1], John Rodriguez[1], Ziv Hameiri[1] (1. University of New South Wales (Australia))

[Th3-P22-32]

Variable performance loss rates at different times of the day in a utility-scale PV system

Ali Shakiba[1], *Brendan Wright[1], John Rodriguez[1], Ziv Hameiri[1] (1. University of New South Wales (Australia))

[Th3-P22-34]

Reliability study on no-gap module with encapsulation material research

*Dongchul Suh[1], Sungho Hwang[2], Young-su Kim[3], Yoonmook Kang[2] (1. Hoseo University (Korea), 2. Korea University (Korea), 3. 2Research Institute of Industrial Science and Technology (Korea))

[Th3-P22-35]

Reinforcement on thermal dissipation characteristics of bypass diode encapsulated by graphite-mixed silicone potting

*Jiwon Song[1], Jaehwan Ko[1], Seong-Hyeon Kim[1], Hyung-Jun Song[1] (1. Seoul National University of Science and Technology (Korea))

[Th3-P22-36]

Development of flame -retardant polyolefin based encapsulants and application to modules

*Shiori Shinozaki[1], Ken Murasawa[1], Motonobu Hamagami[1], Atsuo Tsuzuki[1], Akihiro Hayakawa[1], Shigehiro Ueno[1], Taiki Takayama[1] (1. Dai Nippon Printing Co., Ltd. (Japan))

[Th3-P22-37]

The deviation of the *I-V* parameters predicts the type of failure of PV modules

*MANIT SEAPAN[1], Dhirayut Chenvidhya[1], Yaowanee Sangpongsanont[1], Kittipob Wiriyavorawet[1], Krissanapong Kirtikara[1] (1. CES Solar Cells Testing Center, Pilot Plant Development and Training Institute, King Mongkut's University of Technology Thonburi (Thailand))

[Th3-P22-38]

The correlation of EL image and shunt resistance of power degradation module installation on the field in Thailand over 10 years

*Yaowanee - Sangpongsanont[1], Manit Seapan[1], Tanokkorn Chenvidhya[1], Krissanapong Kirtikara[1], Dhirayut Chenvidhya[1], Ballang Muenpinij[1], Panusorn Polchai[1] (1. CES Solar Cells Testing Center (CSSC), Pilot Plant Development and Training Institute (PDTI), King Mongkut University of Technology Thoburi (KMUTT) (Thailand))

[Th3-P22-39]

Effectiveness of the Sky View Factor for power generation estimation method for vertically installed Bifacial PV modules

*Atsushi Goto[1], Ryuto Sigenobu[1], Akiko Takahashi[1], Masakazu Ito[1], Takashi Oozeki[2], Kyungsoo Lee[3] (1. University of Fukui (Japan), 2. National Institute of Advanced Industrial Science and Technology (Japan), 3. Tech University of Korea (Korea))

[Th3-P22-40]

Comparative Analysis of Crystalline Silicon and Bifacial Photovoltaic Systems in Thailand.

*sasiwimon songtrai[1], Perawut Chinnavornrungsee[2], Vichit Saengsuwan[2], Supoj Sodarat[2], Sirimongkon Sangkhawong[2], Nuwong Chollacoop[2], Phasapon Manosukritkul[3], Wangpai Lewtaveesap[4], Kobsak Sriprapha[1] (1. National Electronics and Computer Technology Center (Thailand), 2. National Energy Technology Center (Thailand), 3. King Mongkut's Institute of Technology Ladkrabang Prince of Chumphon Campus (Thailand), 4. Advanced wireless network company limited (Thailand))

[Th3-P22-41]

Comparative Study of Bifacial PERC and Heterojunction Modules for the Semi-Arid Climate

*IMANE FLOUCHI FLOUCHI[1] (1. Green energy park (Morocco))

[Th3-P22-42]

Establishing a 5kW Building-Integrated Photovoltaic System Using Shingled Solar Modules

*Minseob Kim[1,2], Sungmin Youn[1], Min-Joon Park[1], Eunae Jo[1], CheolYeong Park[1], kiseok Jeon[1,3], Jinho Shin[1,2], Eunbi Lee[1,3], Yu-Jin Kim[1,2], Chaehwan Jeong[1] (1. Korea Institute of Industrial Technology (Korea), 2. Chonnam national university (Korea), 3. Yonsei University Seoul (Korea))

[Th3-P22-43]

Performance assessment of Bifacial Photovoltaic device with modified G_E method to enhance measurement accuracy

*Arup Dhar[1,2], Birinchi Bora[1], Shazma Malik[1], Vamsi Krishna Komarala[2], Chandan Banerjee[1] (1. National Institute of Solar Energy (India), 2. Indian Institute of Technology Delhi (India))

[Th3-P22-44]

Novel method for evaluating the performance of cutting-edge bifacial PV modules: HJT, TOPCon, and PERC

*Khadija El Ainaoui[1], Mhammed Zaimi[1], Imane Flouchi[2], Yasmine El Mrabet[2], Said Elhamaoui[2], Abdellatif Ghennioui[2], El Mahdi Assaid[1] (1. Chouaib Doukkali University (Morocco), 2. Green Energy Park (Morocco))

[Th3-P22-45]

Interpretation of Calculated Degradation Rate Distributions from Nameplate Values of Photovoltaic Modules

*Ruchita Korgaonkar[1], Narendra Shiradkar[1] (1. Indian Institute of Technology, Bombay (India))

[Th3-P22-46]

Development of recovery techniques for Si PV module performance using spot induction heating

*Yu Kawano[1], Takashi Minemoto[1] (1. Ritsumeikan University (Japan))

[Th3-P22-47]

Study on the different procedures for stabilization of reference solar cells

*Shazma Malik[1], Birinchi Bora[1], Arup Dhar[1,2], Chandan Banerjee[1] (1. National Institute of Solar Energy (India), 2. Indian Institute of Technology Delhi (India))

[Th3-P22-48]

Performance and simulation study on vertical & agri-PV installations

*Samuel Douillez[1], Hugo Ronaldo Paipa Chaparro[1], Arthur Poquet[1], Martin Poveda[1] (1. TotalEnergies)

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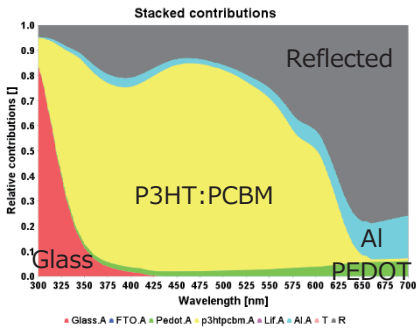
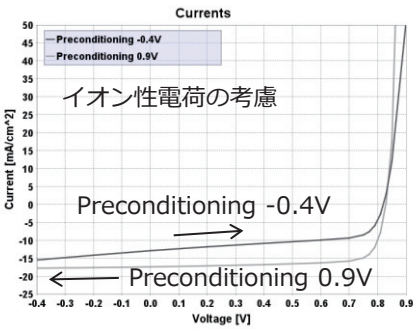
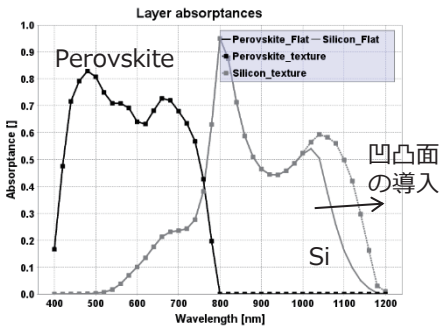
- 発光・吸収特性、電流電圧特性などのシミュレーション



層ごとの吸収割合の波長依存性



ペロブスカイト太陽電池　IV特性



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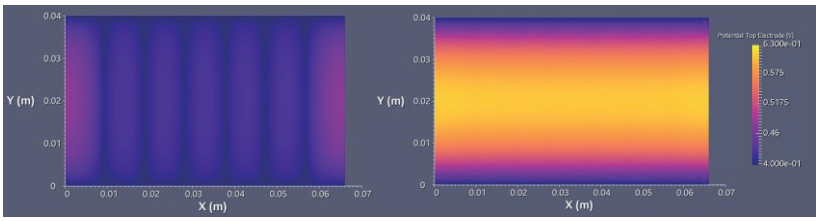
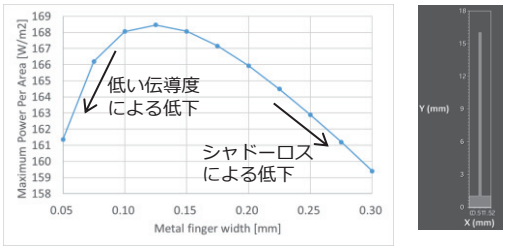
- 光線追跡法による光学シミュレーション



太陽電池パネル表面の電位分布(左：補助電極あり　右：補助電極なし)
補助電極の導入により、電位分布が減少

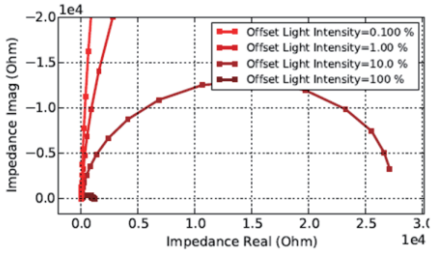


太陽電池　最大電力のフィンガー電極幅依存性

Paios

- ワンクリックで10種類以上の電気・光学測定を自動で実行
- Setfosを利用したパラメータ抽出

測定例：IVL・発光スペクトル・インピーダンス分光・CELIV等



インピーダンス分光測定結果例

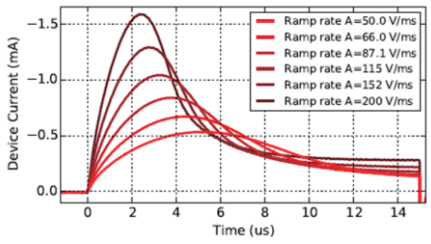


Photo-CELIV測定結果例

Litos Lite

- 太陽電池デバイス耐久性評価装置
- MPP・一定電圧・一定電流下で駆動し、断続的に電流電圧特性を計測

Litos Lite (太陽電池向け)

サイバネットシステム株式会社
デジタルエンジニアリング事業本部
エンジニアリング事業部
オプティカル技術部

101-0022 東京都千代田区神田練塀町3 富士ソフトビル
E-mail：anssales@cybernet.co.jp
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CYBERNET

Development Product

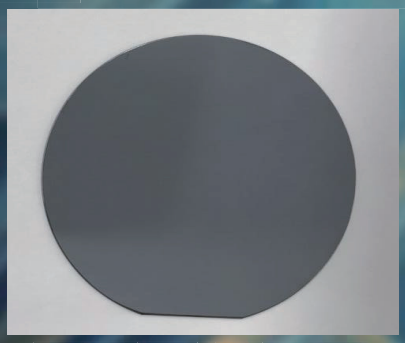
Introducing Cost-Effective SiGe Substrates

Substrate for *Next-Generation Semiconductor* Device Deposition

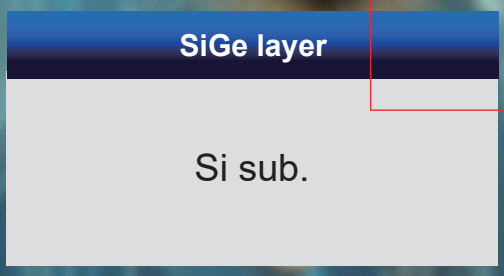
- ***For Device*** **Excellent semiconductor properties of SiGe**
- ***For Substrate*** **Lattice Constant Si 5.431 Å ~ Ge 5.658 Å**
- ***For Large Area*** **~Up to 8 inches**
- ***Examples of Applications***

High-Speed CPU, 5G-6G Communication, Automotive Radar, Compound Semiconductor Device Substrate

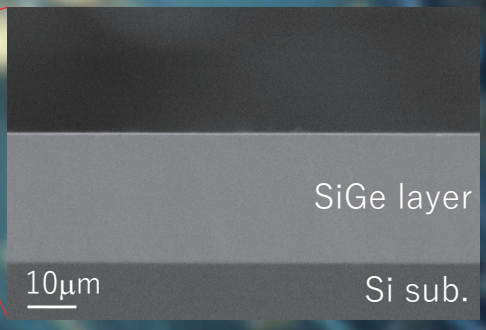
- ***Products images***



SiGe/Si sub.



SiGe/Si sub. Cross-section



SiGe/Si sub. SEM image

Toyo Aluminium K.K.
www.toyal.co.jp

Contact Us

https://www.toyal.co.jp/eng/contact/products.html#contact

KAWAMURA's Mission

Active Defense

For a changing World, a New Sense of Security

As the times change, new risks and worries arise.

Yet, our daily lives are filled with preciousness we seek to protect.
Abundant energy resources. For a world bright and warm.
Giving families peace of mind. Keeping harmony between people.

For a changing world,
Kawamura develops devices that
provide people with a sense of security and protection from hazards.

Understanding the times. Reading the future.
Rather than solving problems after they occur,
we focus on preventing problems from materializing in the first place.
"What might happen next?" "How should we respond?"
These are the questions we are constantly asking and answering.

The more that people treasure in life,
the greater their happiness.
Protecting all that people need protected
-this is our mission.

Global Network

China

Dalian
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Beijing
Kawamura Electric (China) Co.,Ltd.
Kawamura Electric(Beijing) Inc.

Shanghai
Kawamura Electrical Appliance(Shanghai)Co.,Ltd.
Shanghai Kawamura electric Co.,Ltd.
Kawamura Electric Int'l (Shanghai) Co., Ltd.

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Duy Hung Technological Commercial JSC

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Products Line up

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Distribution Boards

Enclosures

Residential Distribution Boards

Moulded Case Circuit Breaker(MCCB)

Earth Leakage Circuit Breaker(ELCB)

Miniature Circuit Breaker(MCB)

Earth Leakage Circuit Breaker(ELB)

kawamura

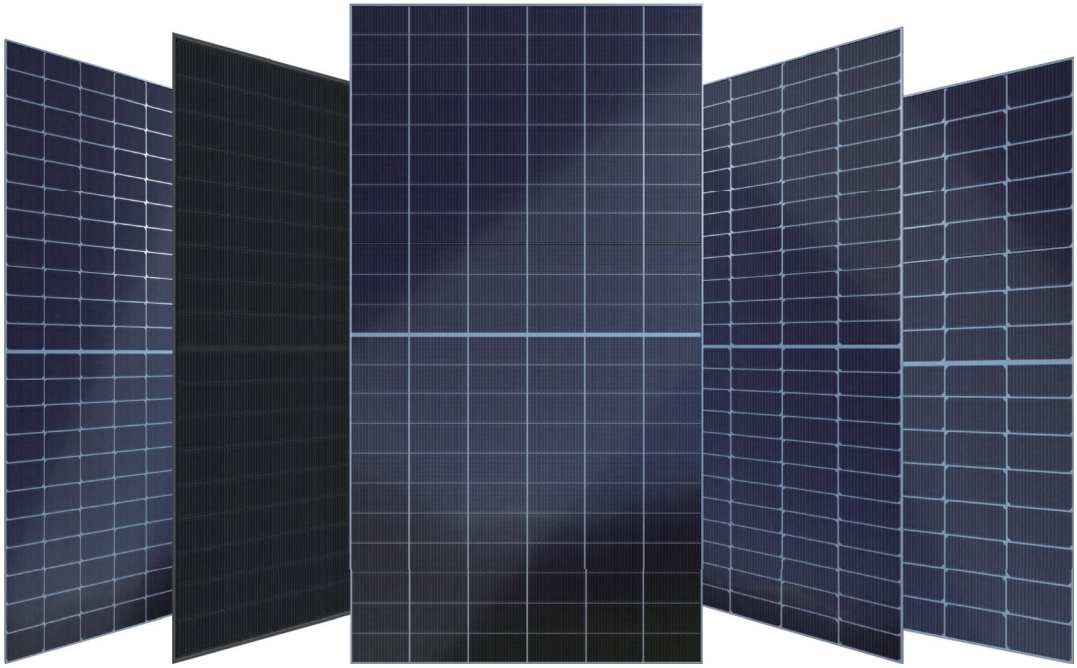
Kawamura Electric Inc.
https://www.kawamura.co.jp/global/
Headquarters Office and Plant : 3-86, Akatsukicho, Seto-City, Aichi-Pref. 〒489-8611
TEL: +81-561-86-8111

WINHITECH

WHO WE ARE

Zhejiang WINHITECH New Energy Co., Ltd. (hereinafter referred to as WINHITECH) is an HJT oriented new energy company, It was jointly established with investments from the Central and State-owned enterprises(China Resources Power Logistics Co., Ltd., Zhoushan Ocean Comprehensive Development Investment Co., Ltd.). The project is located in Zhoushan High-tech Industrial Park, With the biggest "30GW High-Efficiency Heterojunction Solar Cell and 15GW Module Production Equipment Application Demonstration Project" in China.

LEADING THE WAY WITH HJT EXPERTISE



VESSEL Series	APEX Series	APEX Series	VESSEL Series	VESSEL Series
Vessel·TOPCon module	Apex·HJT module	Apex·HJT module	Vessel·TOPCon module	Vessel·TOPCon module
TOPCon 66 module	All-black HJT module	0BB HJT module	TOPCon 72 module	TOPCon 48 module

Contact us to learn more

ZHEJIANG WINHITECH NEW ENERGY CO., LTD

No.5, South Zimao 1st Road, High-tech Industrial Park, Zhoushan City, Zhejiang, China
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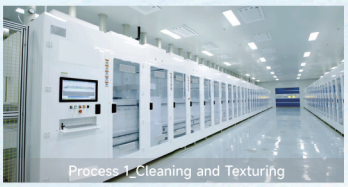
MAXWELL

Maxwell Bifacial Nanocrystalline HJT Cell Manufacturing Whole-line Solution

The solution for HJT high efficiency cell manufacturing, which completely covers the four processes of HJT cell production, is independently developed by Maxwell.

With designing for manufacturing of larger, thinner, and half-sized HJT cells, the solution combines innovative bifacial nanocrystalline PECVD process route and integrated MES intelligent system, to further improve the efficiency, yield and capacity of solar cells, while reducing the production cost.



Texturing Equipment

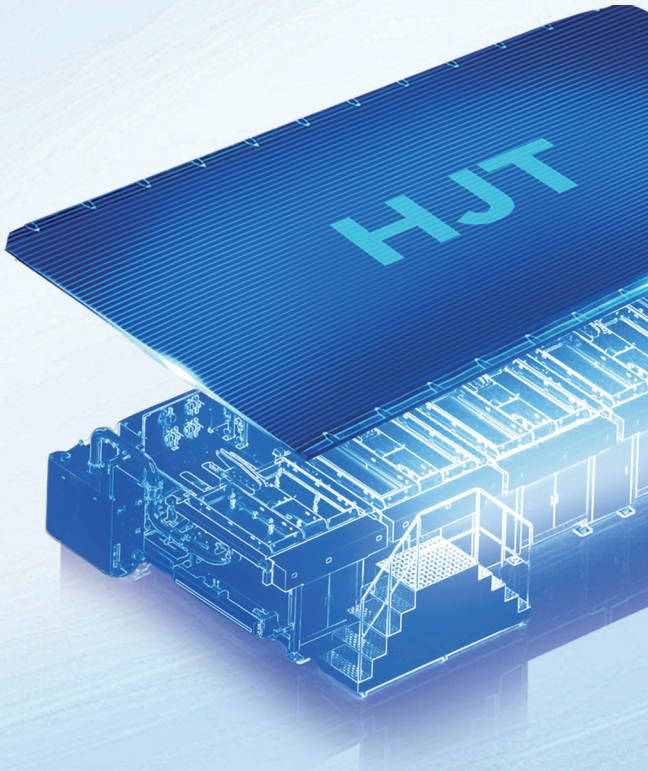
PECVD Coating Equipment

PVD Coating Equipment

Metallization Line Equipment

Intelligent MES System

Intelligent Automatic Scheduling



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Capacity
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Shipment
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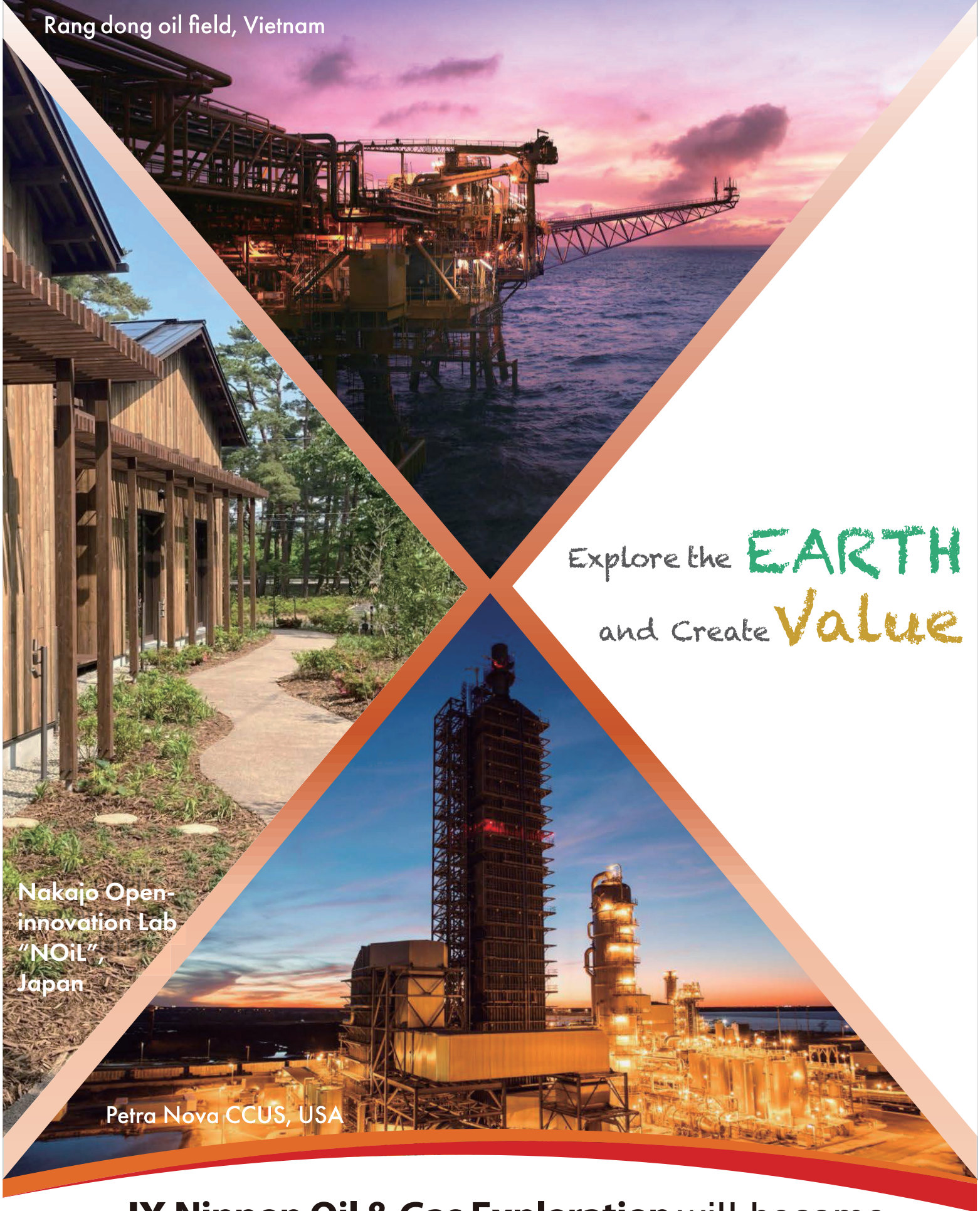

JX Nippon Oil & Gas Exploration will become

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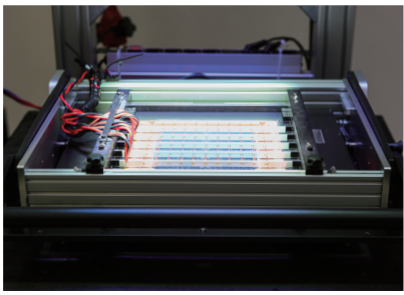
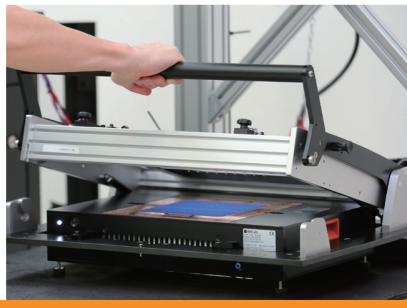
LED's CHARACTERIZE PEROVSKITES

MORE INFO:





- Multicolor LED-based light source for a perfect copy of the sun
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- Control of critical 600-800 nm wavelengths
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WAVELABS

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SUPERALD R&D team consists of experts from all over the world, including those who have more than 10 years of ALD industrial experience in the U.S. and Europe. We also have engineers who have graduated from world-famous universities such as McGill University, Delft University of Technology, etc.

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PEALD System

Thermal ALD System

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- High stability
- Convenient maintenance

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- Sustainable technical support

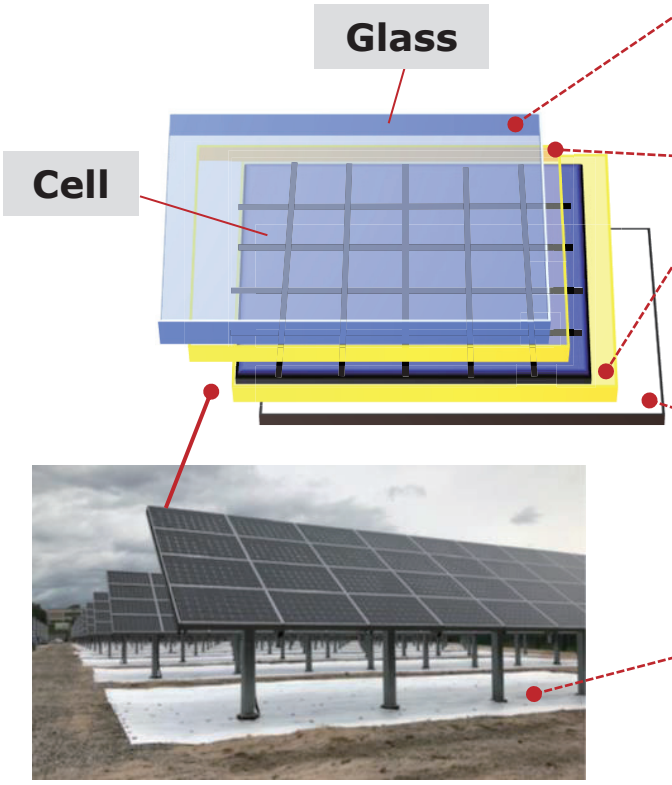
- Novel Intelligent ALD systems
- Independent intellectual property

- Provide fully integrated solutions
- High efficiency and low cost

Bifacial Module and Power Plant Solution

DNP

Image of PV Module



Frontsheet

Encapsulant
TPO encapsulant
POE encapsulant

Backsheet
White Backsheet
Black Backsheet
Transparent Backsheet

Light Dispersion Film

Frontsheet

•High optical transmittance, long-term reliability

Encapsulant

•High optical transmittance, long-term reliability, PID-free
(Without generating acidic gas, low water vapor permeability)

Backsheet

•White Backsheet: Long-term reliability
•Black Backsheet: Power generation improvement by reflecting infrared
•Transparent Backsheet: High optical transmittance, long-term reliability

Light Dispersion Film

•Power generation improvement by increasing albedo
(Combination use of bifacial module and the Light Dispersion Film)

Dai Nippon Printing Co., Ltd.

High-performance Materials Operations 1-1-1, Ichigaya-Kagacho, Shinjuku-ku, Tokyo 162-8001, Japan
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2024.10.01