

Keynote, Invited, and Oral Lectures

----- July 29, 2024 (Monday) Room A -----

[Chair : Jayaraman Sivaguru, Yusuke Tamaki]

10:45-11:15 1A-01-KL

***Eiji Shirakawa¹** (*1.Kwansei Gakuin University*)

Electron-Catalyzed Cross-Coupling Reaction with Manipulation of an Electron by Photoirradiation

11:15-11:40 1A-02-IL

***Hirohisa Ohmiya¹** (*1.Kyoto University*)

Radical Catalysis

11:40-12:05 1A-03-IL

***Yoshihiro Nishimoto¹** (*1.Osaka University*)

Defluorinative Transformation of Perfluoroalkyl Compounds Mediated by Photocatalyst and Lewis Acid

12:05-12:30 1A-04-IL

***Tomoko Yajima¹** (*1.Ochanomizu University*)

Development of visible light induced perfluoroalkylation reaction

(Break)

[Chair : Youngmin You, Manabu Abe]

14:30-15:00 1A-05-KL

***Norbert Hoffmann¹** (*1.IPCMC, CNRS, University of Strasbourg*)

Photochemical reactions of oxazolones and vanillin derivatives – Insights in the reaction mechanisms

15:00-15:25 1A-06-IL

***Jayaraman Sivaguru¹** (*1.Bowling Green State University*)

Channeling Excited State Reactivity In Molecular Scaffolds via Synergistic Interaction

15:25-15:50 1A-07-IL

***Ryosuke Matsubara¹** (*1.Kobe University*)

Transition metal-free photoreduction of CO₂ using organohydride catalyst-recycling strategy

(Break)

[Chair : Takashi Ooi, Suraj Gupta]

16:25-16:50 1A-08-IL

***Youngmin You¹** (*1.Yonsei University*)

Molecular Photoredox catalysts with Strong Photoreducing Power

16:50-17:05 1A-09-OR

***Yusuke Tamaki¹, Rei Inoue², Elena Bassan³, Kei Kamogawa², Paola Ceroni³, Osamu Ishitani^{2,4}** (1.AIST, 2.Tokyo Tech., 3.University. Bologna, 4.Hiroshima University)

Photocatalytic CO₂ reduction using TADF organic photosensitizer: Effects of photo-induced electron transfer via singlet and triplet excited states

17:05-17:20 1A-10-OR

***Toshiya Tanaka¹, Yusuke Tamaki², Kazuhiko Maeda¹, Osamu Ishitani³** (1.Tokyo Tech., 2.AIST, 3.Hiroshima University)

Addition effect of Os(II) complex photosensitizers on CO₂ reduction photocatalysts of binuclear Ru(II)-Re(I) and polymeric carbon nitride

17:20-17:35 1A-11-OR

***Ying-Chih Pu¹, Yu-Chieh Li¹, Kai-An Tsai¹, Yu-Chen Wei¹** (1. National University of Tainan)

Metal organic framework modified CdS nanorods for the efficiency improvement in photocatalytic CO₂ reduction

17:35-17:50 1A-12-OR

***Heberton Wender¹, Renato V. Gonçalves², Francielle Stelo¹** (1.Federal University of Mato Grosso do Sul, 2.University of São Paulo)

Photocatalytic CO₂ reduction using lanthanum modified Bi₂MoO₆ in the gas and liquid phase

----- July 29, 2024 (Monday) Room B -----

[Chair : Akira Yamakata, Masaru K. Kuno]

10:45-11:15 1B-01-KL

***Tsukasa Torimoto¹, Kazutaka Akiyoshi¹, Tatsuya Kameyama¹, Taro Uematsu², Susumu Kuwabata²** (1.Nagoya University, 2.Osaka University)

Solution-phase Synthesis of AgInGaS Quantum Dots for Photocatalytic H₂ Evolution

11:15-11:40 1B-02-IL

***Fumiaki Amano¹** (1.Tokyo Metropolitan University)

Polymer electrolyte membrane-based photoelectrochemical cells with three-dimensional porous photoelectrodes

11:40-11:55 1B-03-OR

***Shujie Zhou¹, Cui Ying Toe^{3,1}, Xiaojing Hao², Rose Amal¹** (1.University of New South Wales, 2.UNSW Sydney, 3.University of Newcastle)

Advancing kesterite-based photocathodes for water splitting and beyond

11:55-12:10 1B-04-OR

***Diwakar Suresh Babu^{1, 2}, Sven Schneider^{1, 2}, Roel van de Krol^{1, 2}** (1.Helmholtz-Zentrum Berlin (HZB), 2.Technische Universität Berlin)

Unassisted PEC Water Splitting using III-V Photoabsorbers: Impact of Surface Characteristics and Electrolyte Selection

12:10-12:25 1B-05-OR

***Shin-ichi Naya¹, Yoko Morita², Musashi Fujishima¹, Hisashi Sugime¹, Tetsuro Soejima¹, Hiroaki Tada²** (1.Kindai University, 2.Nagaya University)

Domain matching epitaxy effect on the anatase titanium(IV) oxide nanoplate array-supported gold nanoparticle for water splitting

(Break)

[Chair : Fumiaki Amano, Tsukasa Torimoto]

14:30-15:00 1B-06-KL

***Masaru Kuno¹** (1.University of Notre Dame)

A polaron paradigm for inorganic perovskite nanocrystal band edge absorbing and emitting states

15:00-15:25 1B-07-IL

Yuzuka Minami¹, Sumire Ikeyama¹, *Azusa Muraoka¹ (1.Japan Women's University)

Charge Separation Process in BTax Nonfullerene Organic Solar Cells

15:25-15:40 1B-08-OR

***Shinichi Fujiwara¹, Yuta Hayashi¹, Yuya Nagai¹, Zhenhua Pan¹, Kenji Katayama¹** (1.Chuo University)

Convolutional Neural Network Prediction of the Photocurrent–Voltage Curve directly from Scanning Electron Microscopic Image for Hematite

15:40-15:55 1B-09-OR

***Yohei Cho^{1, 5, 4}, Mengya Yang², Junyi Cui², Yue Yang⁵, Salvador Eslava², Daniele Benetti², James R Durrant², Akira Yamaguchi⁵, Masahiro Miyauchi⁵, Fumiaki Amano³** (1. *Japan Advanced Institute of Science and Technology*, 2. *Imperial College London*, 3. *Tokyo Metropolitan University*, 4. *Research Fellow of Japan Society for the Promotion of Science*, 5. *Tokyo Tech.*)
Analysis of photoanodic process using intensity modulated photocurrent spectroscopy (IMPS) and distribution of relaxation time (DRT)

(Break)

[Chair : Azusa Muraoka, Kenji Katayama]

16:25-16:40 1B-10-OR

***Sven Schneider^{1, 2}, Feng Liang¹, Roel van de Krol^{1, 2}** (1. *Institute for Solar Fuels, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH*, 2. *Institut für Chemie, Technische Universität Berlin*)
Design Considerations for Scalable Photoelectrochemical Water Splitting Devices

16:40-16:55 1B-11-OR

***Jin-Bo Pan¹** (1. *Johannes Gutenberg University Mainz*)
Pyrazine Axial Coordination in BiVO₄@Metal Phthalocyanine Core-shell photoanodes for Efficient Water Oxidation

16:55-17:10 1B-12-OR

***Fan - Feng¹** (1. *Johannes Gutenberg University Mainz*)
High-Performance BiVO₄ Photoanodes: Elucidating the Combined Effects of Mo-Doping and Modification with Cobalt Polyoxometalate

17:10-17:25 1B-13-OR

***Lingga Ghufira Oktariza¹, Yuta Sato¹, Kenichi Ozawa², Muhammad Monirul Islam¹, Shigeru Ikeda³, Takeaki Sakurai¹** (1. *University of Tsukuba*, 2. *High Energy Accelerator Research Organization*, 3. *Konan University*)
Optimizing Onset Potential in Mo:BiVO₄/TiO₂ Heterojunctions through Oxygen Partial Pressure Modulation for Enhanced Photoelectrochemical Water Splitting

17:25-17:40 1B-14-OR

***Karthick Raj AG^{1, 2}, Sammy Verbruggen^{1, 2}** (1. *University of Antwerp*, 2. *NANOLab Center of Excellence*)
Laser Ablated Nickel-Iron Clusters on Bismuth Vanadate for Efficient Photoelectrochemical Water Splitting

----- July 29, 2024 (Monday) Room C -----

[Chair : Seigo Ito, Ryuji Kaneko]

10:45-11:15 1C-01-KL

***Takeru Bessho¹** (*1.Sekisui Chemical Company*)

The development of film-type perovskite solar cell and demonstration for practical application.

11:15-11:40 1C-02-IL

***Iván Mora-Seró¹** (*1.Institute of Advanced Materials (INAM) at University Jaume I*)

Advances in Sn-based perovskite solar cells and LEDs

11:40-11:55 1C-03-OR

***Kazuteru Nonomura¹, Kei Ito¹, Ryota Kan¹, Zhang Congcong¹, Keishi Tada¹, Takumi Kinoshita¹, Jotaro Nakazaki¹, Satoshi Uchida¹, Hiroshi Segawa¹** (*1.The University of Tokyo*)

Enhanced Efficiency by a post-thermal treatment for Sn-Pb hybrid perovskite solar cells

11:55-12:10 1C-04-OR

***Shozo Yanagida¹** (*1.Professor Emeritus*)

How can perovskite solar cells achieve long-term durability?

12:10-12:25 1C-05-OR

***Ahmed Fouad Musa¹, Tzu-Chien Wei¹** (*1.National Tsing Hua University*)

Achieving Long-term Stability and High Efficiency of α -FAPbI₃ Perovskite Solar Cells via CsSCN Additives

(Break)

[Chair : Ivan Mora-Sero, Takeru Bessho]

14:30-15:00 1C-06-KL

***Hiroshi Segawa¹** (*1.The University of Tokyo*)

Toward High Performance Perovskite Solar Cells and Modules

15:00-15:25 1C-07-IL

***Ryuji Kaneko¹** (*1.EneCoat Technologies Co.,Ltd*)

"Energy Anywhere": Commercializing Perovskite Solar Modules

15:25-15:40 1C-08-OR

***Lin Yang¹** (*1.Northeast Normal University*)

Facilitating charge transfer and band alignment in perovskite solar cells via regulation with two-dimensional MXenes

15:40-15:55 1C-09-OR

***Xiaoxin Gao¹** (*1.EPFL*)

Perovskite Solar Cells Passivation Strategy: Impact of Organic Ammonium Salts on the Performance of 3D/2D Perovskite Solar Cells

(Break)

16:25-16:55 1C-10-KL

***Tsutomu Miyasaka¹** (*1.Toin University of Yokohama*)

Molecular engineering for high voltage perovskite solar cells

16:55-17:10 1C-11-OR

***Seigo Ito¹** (*1.University of Hyogo*)

Fabrication Process for Submodule of Carbon-Based Multi-Porous-Layered-Electrodes Perovskite Solar Cells (MPLE-PSC)

17:10-17:25 1C-12-OR

***Juan A. Anta¹, Patricia Sanchez-Fernández¹, Clara Aranda¹, Renán Escalante¹, Antonio J. Riquelme², Renaud Demadrille², Paul Pistor¹, Gerko Oskam¹** (*1.Universidad Pablo de Olavide, 2.CEA-University. Grenoble Alpes-CNRS*)

Competition between transport and recombination in dye solar cells at low light intensity

17:25-17:40 1C-13-OR

***Mitsuru Narita¹, Shogo Mori¹** (*1.Shinshu University.*)

Effect of Solvents on the Interfacial Electron Transfer at Semiconductor/Dye/Electrolyte Interfaces and its Application for Dye-Sensitized Solar Cells

17:40-17:55 1C-14-OR

***Daniel Holzhacker¹, Derck Schlettwein¹** (*1.Justus Liebig University Giessen*)

Simultaneous Measurement of Charge Transfer Resistances at Photoanodes and Counter Electrodes in Aqueous Dye-Sensitized Solar Cells

----- July 29, 2024 (Monday) Room D -----

[Chair : Kazuhiro Takanabe, Princess R. Cabotaje]

10:45-11:15 1D-01-KL

***Hyunjoo Lee¹, Phil Woong Kang¹, Gui-Min Kim¹, Robert Haaring¹, Doh C. Lee¹** (1.Korea Advanced Institute of Science and Technology)

Energy-Efficient CO₂ Reduction: Applying Plasmonic Catalysts in a CO₂ Electrolyzer

11:15-11:30 1D-02-OR

***Princess R. Cabotaje¹, Alina Sekretareva¹, Ping Huang¹, Kaija Walter, Max A. Klamke, Afridi Zamader², Holly J. Redman, Felix Ho¹, Rhys Grinter³, Moritz Senger¹, Sven T. Stripp⁴, Chris Greening³, Henrik Land¹, Gustav Berggren¹** (1.Uppsala University, 2.Universit  Paris Cit , CNRS, 3.Monash University, 4.Technische Universit t Berlin)

Exploring the Biodiversity of [FeFe] Hydrogenase for Green H₂ Applications: Recent Advances and Optimization Strategies

11:30-11:45 1D-03-OR

***Yuki Shinagawa¹, Hiroyuki Okada¹, Etsushi Tsuji¹, Satoshi Suganuma^{1,2}, Naonobu Katada¹** (1.Tottori University, 2.Hokkaido University)

Improvement of durability of spinel-type cobalt oxide anode by substitution of cobalt with iron for water electrolysis at neutral pH

11:45-12:00 1D-04-OR

***Hiroyuki Okada¹, Etsushi Tsuji¹, Sho Kitano², Hiroki Habazaki², Satoshi Suganuma², Naonobu Katada¹** (1.Tottori University, 2.Hokkaido University)

Development of Durable Oxides Anode with Brownmillerite-type Structure for Water Electrolysis at Neutral pH

12:00-12:15 1D-05-OR

***Akira Yamaguchi¹, Hisanobu Taga¹, Masahiro Miyauchi¹** (1.Tokyo Institute of Technology)
Enhancement of Electrochemical Formate Production from Carbon Dioxide on Copper Sulfide by Potential-Step Method

12:15-12:30 1D-06-OR

***Naohiko Kato¹, Shintaro Mizuno¹, Masahito Shiozawa¹, Yoshihiro Kikuzawa¹, Natsumi Nojiri¹, Takeshi Morikawa¹, Tsuyoshi Hamaguchi¹, Yasuhiko Takeda¹** (1.Toyota Central R&D Labs., Inc.)

Solar-fuel production system that combines a solar-driven electrochemical reaction process and an isolation process of the product

(Break)

[Chair : Tomohiro Fukushima, Hyunjoo Lee]

14:30-14:45 1D-07-OR

***Yuki Nakai¹, Yuki Nagai¹, Yoshinori Okayasu¹, Yoichi Kobayashi^{1, 2}** (1.Ritsumeikan University, 2.PRESTO, JST)

Regulating the Photodoping of Semiconductor Nanocrystals by Supramolecular Gel

14:45-15:00 1D-08-OR

***Miyu Watanabe¹, Watari Ikuta¹, Etsushi Tsuji¹, Satoshi Suganuma^{1, 2}, Naonobu Katada¹**
(1.Tottori University, 2.Hokkaido University)

Electrolysis of water vapor in air using NaClO₄ as a hygroscopic electrolyte

15:00-15:15 1D-09-OR

Cancellation

15:15-15:30 1D-10-OR

***Jui-Cheng Chang¹, Ching-Wen Su², Ying-Chih Pu³, Wen-Yueh Ho⁴, Yuh-Lang Lee², Hsisheng Teng², Tsung-Lun Kan²** (1.Chung Yuan Christian University, 2.National Cheng Kung University, 3.National University of Tainan, 4.Chia Nan University of Pharmacy & Science)

Ionic Liquids Containing Self-Quenching Cation for Low-Temperature Electric Double Layer Capacitors of High Energy Capacity

(Break)

[Chair : Tomohiro Fukushima, Hyunjoon Lee]

16:25-16:55 1D-11-KL

***Masami Nakazawa¹, Hiroshi Inui², Yuichiro Kashiyama³, Takumi Shimotashiro¹, Ryunosuke Katayama¹, Rikuto Oishi¹, Mitsuhiro Ueda¹, Tatsuji Sakamoto¹** (1.Osaka Metropolitan University, 2.Otemae University, 3.Fukui University of Technology)

Biofuel production coupled with anaerobic respiration in *Euglena gracilis*

16:55-17:10 1D-12-OR

***Kazuma Suehiro¹, Yutaka Amao¹**, (1.Osaka Metropolitan University)

Lactate synthesis from CO₂ and acetaldehyde by combining dual-biocatalytic systems

----- July 29, 2024 (Monday) Room E -----

[Chair : Hiroshi Irie, Josef Krysa]

10:45-11:15 1E-01-KL

***Akihiko Kudo¹** (*1.Tokyo University of Science*)

Green hydrogen production and CO₂ reduction using heterogeneous photocatalysts

11:15-11:40 1E-02-IL

***Ryu Abe¹** (*1.Kyoto University*)

Construction of new visible-light-driven photocatalytic water splitting systems using Prussian blue analogues as effective surface modifiers

11:40-11:55 1E-03-OR

***Hua Sheng^{1, 2}, Zhiyong Zhang^{1, 2}** (*1.Institute of Chemistry, Chinese Academy of Sciences, 2.University of Chinese Academy of Sciences*)

Photocatalytic CO₂ Reduction with Oxygen-Tolerance

11:55-12:10 1E-04-OR

***Hiroshi Irie¹, Masaomi Yoda¹, Hiroshi Miyashita¹, Toshihiro Takashima¹** (*1.University of Yamanashi*)

Copper-loaded solid-state Z-scheme photocatalyst for enhanced overall water splitting and carbon dioxide reduction to methane with water oxidation

(Break)

[Chair : Akihiko Kudo, Hua Sheng]

14:30-15:00 1E-05-KL

***Shane Ardo¹** (*1.University of California Irvine*)

Predicting the Behavior of Ensembles of Photosynthetic Nanoreactors

15:00-15:25 1E-06-IL

Tomas Imrich¹, Michael Neumann-Spallart¹, *Josef Krysa¹ (*1.University of Chemistry and Technology Prague*)

Photoelectrochemical and photoelectrosynthetic reactions on α -Fe₂O₃, Fe₂TiO₅, WO₃ and TiO₂ photoanodes

15:25-15:40 1E-07-OR

***Shunya Yoshino¹, Naoto Morishita¹, Makoto Kobayashi², Hideki Kato¹** (*1.Tohoku University, 2.Nagoya University*)

Improvement of activity of SrTaO₂N photocatalyst by substitution of Ba-ion

15:40-15:55 1E-08-OR

***Yuta Tsubonouchi¹, Kazuma Takakura¹, Norihisa Hoshino¹, Debraj Chandra¹, Zaki Zahran¹, Masayuki Yagi¹** (*1.Niigata University*)

Bias-free solar hydrogen peroxide production in a photoelectrochemical cell using an organic polymer photocathode

(Break)

[Chair : Hideki Hashimoto, Ardo Shane]

16:25-16:50 1E-09-IL

***Haruo Inoue³, Fazalurahman Kuttassery¹, Arifa Kaniyantavida¹, Jayachandran Kaippully¹, Aparna Chencharodi¹, Haritha Anamangattupurakkal¹, Sebastian Nybin Remello², Hiroshi Tachibana³** (1.University of Calicut, 2.Cochin University of Science and Technology, 3.Tokyo Metropolitan University)

Visible light induced two-electron water oxidation by paramagnetic Vanadyl porphyrins

16:50-17:05 1E-10-OR

***Shin-ya Takizawa¹, Suguru Yamazaki¹, Jun Terao¹** (1.The University of Tokyo)

Heterometallic ion pair of Ru(II) and Ir(III) complexes: Effective visible light-harvesting photosensitizer for CO₂ reduction

17:05-17:20 1E-11-OR

***Chiasa Uragami¹, Yuya Morita¹, Shunsuke Kino¹, Rinka Koyama¹, Marina Yoshida¹, Alastair T Gardiner², Richard J Cogdell³, Hideki Hashimoto¹** (1.Kwansei Gakuin University, 2.Czech Academy of Sciences, 3.University of Glasgow)

Spectroscopic investigation on the LH2 complex reconstituted with carotenoids of the spirilloxanthin series

17:20-17:35 1E-12-OR

***Shengnan Duan¹, Shengnan Duan², Shin-ichi Sasaki³, Xiao-Feng Wang⁴, Hitoshi Tamiaki⁵** (1.Chongqing University of Posts and Telecommunications, 2.Kwansei Gakuen University, 3.Nagahama Institute of Bio-Science and Technology, 4.Jilin University, 5.Ritsumeikan University)

Natural Bio-additive Chlorophyll Derivative Enables 17.30% Efficiency Organic Solar Cells

17:35-17:50 1E-13-OR

***Octavio Martinez Perez¹** (1.University of Alberta)

Abundant 4CzIPN-derivatized Photosensitizers and Catalysts for Photosynthetic Organic Reactions and Solar Fuels