

# Plenary Lectures

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

[Chair : Hiroshi Segawa]

08:45-09:30 1-PL-01

**\*Michael Graetzel<sup>1</sup>** (*1.EPFL*)

Molecular Photovoltaics and the Rise of Perovskite Solar Cells

[Chair : Akihiko Kudo]

09:30-10:15 1-PL-02

**\*Harry Atwater<sup>1</sup>** (*1.California Institute of Technology*)

Coupled Microenvironment Systems for Liquid Solar Fuels

[Chair : Lianzhou Wang]

13:30-14:15 1-PL-03

**\*Alex K Y Jen<sup>1</sup>** (*1.City University of Hong Kong*)

Printable Organic and Perovskite Solar Cells for Clean Energy

## ----- July 30, 2024 (Tuesday) Room A -----

[Chair : Hiroshi Imahori]

08:30-09:15 2-PL-01

**\*Daniel G. Nocera<sup>1</sup>** (*1.Harvard University*)

The Bionic Leaf: Distributed and Renewable Fischer-Tropsch and Haber-Bosch at High Solar Energy Efficiencies and Large Carbon Savings

[Chair : Shuji Hayase]

09:15-10:00 2-PL-02

**\*Nam-Gyu Park<sup>1</sup>** (*1.SKKU*)

Discovery and Progress of Perovskite Solar Cells

[Chair : Osamu Ishitani]

13:30-14:15 2-PL-03

**\*Yuichiro Himeda<sup>1</sup>** (*1.AIST*)

Development of complex catalysts for CO<sub>2</sub> conversion to methanol and formic acid

## ----- July 31, 2024 (Wednesday) Room A -----

[Chair : Teruhisa Ohno]

08:30-09:15 3-PL-01

**\*James Durrant<sup>1</sup>** (*1.Imperial College London*)

Charge separation and stabilisation in photocatalyst materials for solar driven water splitting

[Chair : Hyun Suk Jung]

09:15-10:00 3-PL-02

**\*Shunichi Fukuzumi**<sup>1</sup> (*1.Ewha Womans University / University of Tsukuba*)  
Molecular Artificial Photosynthesis

----- **August 1, 2024 (Thursday) Room A**-----

[Chair : Andre Sarto Polo]

08:30-09:15 4-PL-01

**\*Licheng Sun**<sup>1, 2</sup> (*1. Westlake University, 2.KTH Royal Institute of Technology*)  
Water Splitting Catalysis—From O-O Bond Formation Mechanisms to Anion Exchange  
Membrane Water Electrolysis

[Chair : Cojocar Ludmila]

9:15-10:00 4-PL-02

**\*Shinichi Komaba**<sup>1</sup> (*1.Tokyo University of Science*)  
All-Solid-State Na- and K-ion Batteries with Ion Conducting Polymer

[Chair : Harry Atwater]

13:30-14:15 4-PL-03

**\*Kazunari Domen**<sup>1</sup> (*1.Shinshu University / The University of Tokyo*)  
Water splitting by particulate photocatalysts for green hydrogen and fuels production

----- **August 2, 2024 (Friday) Room A** -----

[Chair : Hitoshi Tamiaki]

08:30-09:15 5-PL-01

**\*Jian-Ren Shen**<sup>1</sup> (*1.Okayama University*)  
Mechanism of water oxidation in natural photosynthesis

[Chair : Licheng Sun]

09:15-10:00 5-PL-02

**\*Maria Antonietta Loi**<sup>1</sup> (*1.University of Groningen*)  
Efficient Lead-tin perovskite solar cells

# Keynote, Invited, and Oral Lectures

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

[Chair : Jayaraman Sivaguru, Yusuke Tamaki]

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

**\*Eiji Shirakawa**<sup>1</sup> (*1.Kwansei Gakuin University*)

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

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

**\*Hirohisa Ohmiya**<sup>1</sup> (*1.Kyoto University*)

Radical Catalysis

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

**\*Yoshihiro Nishimoto**<sup>1</sup> (*1.Osaka University*)

Defluorinative Transformation of Perfluoroalkyl Compounds Mediated by Photocatalyst and Lewis Acid

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

**\*Tomoko Yajima**<sup>1</sup> (*1.Ochanomizu University*)

Development of visible light induced perfluoroalkylation reaction

(Break)

[Chair : Youngmin You, Manabu Abe]

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

**\*Norbert Hoffmann**<sup>1</sup> (*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 Sivaguru**<sup>1</sup> (*1.Bowling Green State University*)

Channeling Excited State Reactivity In Molecular Scaffolds via Synergistic Interaction

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

**\*Ryosuke Matsubara**<sup>1</sup> (*1.Kobe University*)

Transition metal-free photoreduction of CO<sub>2</sub> using organohydride catalyst-recycling strategy

(Break)

[Chair : Takashi Ooi, Suraj Gupta]

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

**\*Youngmin You**<sup>1</sup> (*1.Yonsei University*)

Molecular Photoredoxcatalysts with Strong Photoreducing Power

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

**\*Yusuke Tamaki<sup>1</sup>, Rei Inoue<sup>2</sup>, Elena Bassan<sup>3</sup>, Kei Kamogawa<sup>2</sup>, Paola Ceroni<sup>3</sup>, Osamu Ishitani<sup>2,4</sup>** (1.AIST, 2.Tokyo Tech., 3.University. Bologna, 4.Hiroshima University)

Photocatalytic CO<sub>2</sub> 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 Tanaka<sup>1</sup>, Yusuke Tamaki<sup>2</sup>, Kazuhiko Maeda<sup>1</sup>, Osamu Ishitani<sup>3</sup>** (1.Tokyo Tech., 2.AIST, 3.Hiroshima University)

Addition effect of Os(II) complex photosensitizers on CO<sub>2</sub> reduction photocatalysts of binuclear Ru(II)-Re(I) and polymeric carbon nitride

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

**\*Ying-Chih Pu<sup>1</sup>, Yu-Chieh Li<sup>1</sup>, Kai-An Tsai<sup>1</sup>, Yu-Chen Wei<sup>1</sup>** (1. National University of Tainan)

Metal organic framework modified CdS nanorods for the efficiency improvement in photocatalytic CO<sub>2</sub> reduction

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

**\*Heberton Wender<sup>1</sup>, Renato V. Gonçalves<sup>2</sup>, Francielle Stelo<sup>1</sup>** (1.Federal University of Mato Grosso do Sul, 2.University of São Paulo)

Photocatalytic CO<sub>2</sub> reduction using lanthanum modified Bi<sub>2</sub>MoO<sub>6</sub> 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 Torimoto<sup>1</sup>, Kazutaka Akiyoshi<sup>1</sup>, Tatsuya Kameyama<sup>1</sup>, Taro Uematsu<sup>2</sup>, Susumu Kuwabata<sup>2</sup>** (1.Nagoya University, 2.Osaka University)

Solution-phase Synthesis of AgInGaS Quantum Dots for Photocatalytic H<sub>2</sub> Evolution

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

**\*Fumiaki Amano<sup>1</sup>** (1.Tokyo Metropolitan University)

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

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

**\*Shujie Zhou<sup>1</sup>, Cui Ying Toe<sup>3,1</sup>, Xiaojing Hao<sup>2</sup>, Rose Amal<sup>1</sup>** (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<sup>1, 2</sup>, Sven Schneider<sup>1, 2</sup>, Roel van de Krol<sup>1, 2</sup>** (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 Naya<sup>1</sup>, Yoko Morita<sup>2</sup>, Musashi Fujishima<sup>1</sup>, Hisashi Sugime<sup>1</sup>, Tetsuro Soejima<sup>1</sup>, Hiroaki Tada<sup>2</sup>** (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 Kuno<sup>1</sup>** (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 Minami<sup>1</sup>, Sumire Ikeyama<sup>1</sup>, \*Azusa Muraoka<sup>1</sup>** (1.Japan Women's University)

Charge Separation Process in BTax Nonfullerene Organic Solar Cells

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

**\*Shinichi Fujiwara<sup>1</sup>, Yuta Hayashi<sup>1</sup>, Yuya Nagai<sup>1</sup>, Zhenhua Pan<sup>1</sup>, Kenji Katayama<sup>1</sup>** (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<sup>1, 5, 4</sup>, Mengya Yang<sup>2</sup>, Junyi Cui<sup>2</sup>, Yue Yang<sup>5</sup>, Salvador Eslava<sup>2</sup>, Daniele Benetti<sup>2</sup>, James R Durrant<sup>2</sup>, Akira Yamaguchi<sup>5</sup>, Masahiro Miyauchi<sup>5</sup>, Fumiaki Amano<sup>3</sup>** (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<sup>1, 2</sup>, Feng Liang<sup>1</sup>, Roel van de Krol<sup>1, 2</sup>** (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 Pan<sup>1</sup>** (1. *Johannes Gutenberg University Mainz*)  
Pyrazine Axial Coordination in BiVO<sub>4</sub>@Metal Phthalocyanine Core-shell photoanodes for Efficient Water Oxidation

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

**\*Fan - Feng<sup>1</sup>** (1. *Johannes Gutenberg University Mainz*)  
High-Performance BiVO<sub>4</sub> Photoanodes: Elucidating the Combined Effects of Mo-Doping and Modification with Cobalt Polyoxometalate

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

**\*Lingga Ghufira Oktariza<sup>1</sup>, Yuta Sato<sup>1</sup>, Kenichi Ozawa<sup>2</sup>, Muhammad Monirul Islam<sup>1</sup>, Shigeru Ikeda<sup>3</sup>, Takeaki Sakurai<sup>1</sup>** (1. *University of Tsukuba*, 2. *High Energy Accelerator Research Organization*, 3. *Konan University*)  
Optimizing Onset Potential in Mo:BiVO<sub>4</sub>/TiO<sub>2</sub> Heterojunctions through Oxygen Partial Pressure Modulation for Enhanced Photoelectrochemical Water Splitting

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

**\*Karthick Raj AG<sup>1, 2</sup>, Sammy Verbruggen<sup>1, 2</sup>** (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 Bessho<sup>1</sup>** (*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-Seró<sup>1</sup>** (*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 Nonomura<sup>1</sup>, Kei Ito<sup>1</sup>, Ryota Kan<sup>1</sup>, Zhang Congcong<sup>1</sup>, Keishi Tada<sup>1</sup>, Takumi Kinoshita<sup>1</sup>, Jotaro Nakazaki<sup>1</sup>, Satoshi Uchida<sup>1</sup>, Hiroshi Segawa<sup>1</sup>** (*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 Yanagida<sup>1</sup>** (*1.Professor Emeritus*)

How can perovskite solar cells achieve long-term durability?

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

**\*Ahmed Fouad Musa<sup>1</sup>, Tzu-Chien Wei<sup>1</sup>** (*1.National Tsing Hua University*)

Achieving Long-term Stability and High Efficiency of  $\alpha$ -FAPbI<sub>3</sub> Perovskite Solar Cells via CsSCN Additives

(Break)

[Chair : Ivan Mora-Sero, Takeru Bessho]

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

**\*Hiroshi Segawa<sup>1</sup>** (*1.The University of Tokyo*)

Toward High Performance Perovskite Solar Cells and Modules

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

**\*Ryuji Kaneko<sup>1</sup>** (*1.EneCoat Technologies Co.,Ltd*)

"Energy Anywhere": Commercializing Perovskite Solar Modules

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

**\*Lin Yang<sup>1</sup>** (*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 Gao<sup>1</sup>** (*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 Miyasaka<sup>1</sup>** (*1.Toin University of Yokohama*)

Molecular engineering for high voltage perovskite solar cells

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

**\*Seigo Ito<sup>1</sup>** (*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. Anta<sup>1</sup>, Patricia Sanchez-Fernández<sup>1</sup>, Clara Aranda<sup>1</sup>, Renán Escalante<sup>1</sup>, Antonio J. Riquelme<sup>2</sup>, Renaud Demadrille<sup>2</sup>, Paul Pistor<sup>1</sup>, Gerko Oskam<sup>1</sup>** (*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 Narita<sup>1</sup>, Shogo Mori<sup>1</sup>** (*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 Holzacker<sup>1</sup>, Derck Schlettwein<sup>1</sup>** (*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 Lee<sup>1</sup>, Phil Woong Kang<sup>1</sup>, Gui-Min Kim<sup>1</sup>, Robert Haaring<sup>1</sup>, Doh C. Lee<sup>1</sup>** (1.Korea Advanced Institute of Science and Technology)  
Energy-Efficient CO<sub>2</sub> Reduction: Applying Plasmonic Catalysts in a CO<sub>2</sub> Electrolyzer

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

**\*Princess R. Cabotaje<sup>1</sup>, Alina Sekretareva<sup>1</sup>, Ping Huang<sup>1</sup>, Kaija Walter, Max A. Klamke, Afridi Zamader<sup>2</sup>, Holly J. Redman, Felix Ho<sup>1</sup>, Rhys Grinter<sup>3</sup>, Moritz Senger<sup>1</sup>, Sven T. Stripp<sup>4</sup>, Chris Greening<sup>3</sup>, Henrik Land<sup>1</sup>, Gustav Berggren<sup>1</sup>** (1.Uppsala University, 2.Universit  Paris Cit , CNRS, 3.Monash University, 4.Technische Universit t Berlin)  
Exploring the Biodiversity of [FeFe] Hydrogenase for Green H<sub>2</sub> Applications: Recent Advances and Optimization Strategies

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

**\*Yuki Shinagawa<sup>1</sup>, Hiroyuki Okada<sup>1</sup>, Etsushi Tsuji<sup>1</sup>, Satoshi Suganuma<sup>1,2</sup>, Naonobu Katada<sup>1</sup>** (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 Okada<sup>1</sup>, Etsushi Tsuji<sup>1</sup>, Sho Kitano<sup>2</sup>, Hiroki Habazaki<sup>2</sup>, Satoshi Suganuma<sup>2</sup>, Naonobu Katada<sup>1</sup>** (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 Yamaguchi<sup>1</sup>, Hisanobu Taga<sup>1</sup>, Masahiro Miyauchi<sup>1</sup>** (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 Kato<sup>1</sup>, Shintaro Mizuno<sup>1</sup>, Masahito Shiozawa<sup>1</sup>, Yoshihiro Kikuzawa<sup>1</sup>, Natsumi Nojiri<sup>1</sup>, Takeshi Morikawa<sup>1</sup>, Tsuyoshi Hamaguchi<sup>1</sup>, Yasuhiko Takeda<sup>1</sup>** (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 Nakai<sup>1</sup>, Yuki Nagai<sup>1</sup>, Yoshinori Okayasu<sup>1</sup>, Yoichi Kobayashi<sup>1, 2</sup>** (1.Ritsumeikan University, 2.PRESTO, JST)  
Regulating the Photodoping of Semiconductor Nanocrystals by Supramolecular Gel

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

**\*Miyu Watanabe<sup>1</sup>, Watari Ikuta<sup>1</sup>, Etsushi Tsuji<sup>1</sup>, Satoshi Suganuma<sup>1, 2</sup>, Naonobu Katada<sup>1</sup>**  
(1. *Tottori University*, 2. *Hokkaido University*)

Electrolysis of water vapor in air using NaClO<sub>4</sub> as a hygroscopic electrolyte

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

**\*Philippe P. Lainé<sup>1</sup>, Magdaléna Hromadová<sup>2</sup>, Éric Brémond<sup>1</sup>, Hyacinthe Randriamahazaka<sup>1</sup>**  
(1. *University Paris Cité, CNRS*, 2. *J. Heyrovský Institute of Physical Chemistry of the Czech Academy of Sciences*)

Using a Carbon-Carbon bond as electron reservoir

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

**\*Jui-Cheng Chang<sup>1</sup>, Ching-Wen Su<sup>2</sup>, Ying-Chih Pu<sup>3</sup>, Wen-Yueh Ho<sup>4</sup>, Yuh-Lang Lee<sup>2</sup>, Hsisheng Teng<sup>2</sup>, Tsung-Lun Kan<sup>2</sup>** (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, Hyunjoo Lee]

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

**\*Masami Nakazawa<sup>1</sup>, Hiroshi Inui<sup>2</sup>, Yuichiro Kashiya<sup>3</sup>, Takumi, Ryunosuke Katayama<sup>1</sup>, Rikuto Oishi<sup>1</sup>, Mitsuhiro Ueda<sup>1</sup>, Tatsuji Sakamoto<sup>1</sup>** (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 Suehiro<sup>1</sup>, Yutaka Amao<sup>1</sup>**, (1. *Osaka Metropolitan University*)

Lactate synthesis from CO<sub>2</sub> 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 Kudo<sup>1</sup>** (*1.Tokyo University of Science*)

Green hydrogen production and CO<sub>2</sub> reduction using heterogeneous photocatalysts

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

**\*Ryu Abe<sup>1</sup>** (*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<sup>1, 2</sup>, Zhiyong Zhang<sup>1, 2</sup>** (*1.Institute of Chemistry, Chinese Academy of Sciences, 2.University of Chinese Academy of Sciences*)

Photocatalytic CO<sub>2</sub> Reduction with Oxygen-Tolerance

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

**\*Hiroshi Irie<sup>1</sup>, Masaomi Yoda<sup>1</sup>, Hiroshi Miyashita<sup>1</sup>, Toshihiro Takashima<sup>1</sup>** (*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 Ardo<sup>1</sup>** (*1.University of California Irvine*)

Predicting the Behavior of Ensembles of Photosynthetic Nanoreactors

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

**Tomas Imrich<sup>1</sup>, Michael Neumann-Spallart<sup>1</sup>, \*Josef Krysa<sup>1</sup>** (*1.University of Chemistry and Technology Prague*)

Photoelectrochemical and photoelectrosynthetic reactions on  $\alpha$ -Fe<sub>2</sub>O<sub>3</sub>, Fe<sub>2</sub>TiO<sub>5</sub>, WO<sub>3</sub> and TiO<sub>2</sub> photoanodes

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

**\*Shunya Yoshino<sup>1</sup>, Naoto Morishita<sup>1</sup>, Makoto Kobayashi<sup>2</sup>, Hideki Kato<sup>1</sup>** (*1.Tohoku University, 2.Nagoya University*)

Improvement of activity of SrTaO<sub>2</sub>N photocatalyst by substitution of Ba-ion

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

**\*Yuta Tsubonouchi<sup>1</sup>, Kazuma Takakura<sup>1</sup>, Norihisa Hoshino<sup>1</sup>, Debraj Chandra<sup>1</sup>, Zaki Zahran<sup>1</sup>, Masayuki Yagi<sup>1</sup>** (*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 Inoue<sup>3</sup>, Fazalurahman Kuttassery<sup>1</sup>, Arifa Kaniyantavida<sup>1</sup>, Jayachandran Kaippully<sup>1</sup>, Aparna Chencharodi<sup>1</sup>, Haritha Anamangattupurakkal<sup>1</sup>, Sebastian Nybin Remello<sup>2</sup>, Hiroshi Tachibana<sup>3</sup>** (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 Takizawa<sup>1</sup>, Suguru Yamazaki<sup>1</sup>, Jun Terao<sup>1</sup>** (1.The University of Tokyo)

Heterometallic ion pair of Ru(II) and Ir(III) complexes: Effective visible light-harvesting photosensitizer for CO<sub>2</sub> reduction

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

**\*Chiasa Uragami<sup>1</sup>, Yuya Morita<sup>1</sup>, Shunsuke Kino<sup>1</sup>, Rinka Koyama<sup>1</sup>, Marina Yoshida<sup>1</sup>, Alastair T Gardiner<sup>2</sup>, Richard J Cogdell<sup>3</sup>, Hideki Hashimoto<sup>1</sup>** (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 Duan<sup>1</sup>, Shengnan Duan<sup>2</sup>, Shin-ichi Sasaki<sup>3</sup>, Xiao-Feng Wang<sup>4</sup>, Hitoshi Tamiaki<sup>5</sup>** (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 Perez<sup>1</sup>** (1.University of Alberta)

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

----- July 30, 2024 (Tuesday) Room A-----

[Chair : Eiji Shirakawa, Norbert Hoffmann]

10:30-11:00 2A-01-KL

**\*Jye-Shane Yang<sup>1</sup>** (1.National Taiwan University)

Photoresponsive Organic Dynamic Crystals of Anthracene-Pentipitycene  $\pi$ -Systems

11:00-11:25 2A-02-IL

**\*Anna D. Gudmundsdottir<sup>1</sup>** (1.University of Cincinnati)

Photopatterning Organic Azido Crystals

11:25-11:40 2A-03-OR

**\*Haifan Huang<sup>1</sup>, Zihan Lin<sup>1</sup>, Yagna Prakash Bhoi<sup>1</sup>, Gunik Lee<sup>2</sup>, Jun Kumagai<sup>2</sup>, Kexin Zou<sup>1</sup>, Akira Yamamoto<sup>1</sup>, Shohichi Furukawa<sup>1</sup>, Ken-ichi Fujita<sup>1</sup>, Hisao Yoshida<sup>1</sup>** (1.Kyoto University, 2.Nagoya University)

Synthesis of deuterated alkanes by photocatalytic decarboxylation

11:40-11:55 2A-04-OR

**\*Sapna Ahuja<sup>1, 2</sup>, Sruthy Baburaj<sup>2</sup>, Lakshmy Kannadi Valloli<sup>2</sup>, Sarvar Aminovich Rakhimov<sup>2</sup>, Kavyasree Manal<sup>2</sup>, Aakrati Kushwaha<sup>2</sup>, Steffen Jockusch<sup>2</sup>, Malcolm D. E. Forbes<sup>2</sup>, Jayaraman Sivaguru<sup>2</sup>** (1.CSIRO, 2.Bowling Green State University)

Photochemical [2+4]-Dimerization Reaction from the Excited State

11:55-12:10 2A-05-OR

**\*Chomponoot Suppasso<sup>1</sup>, Yoshinobu Kamakura<sup>1</sup>, Misaki Ueno<sup>2</sup>, Sawa Hongo<sup>2</sup>, Ryohei Akiyoshi<sup>2</sup>, Fumitaka Ishiwari<sup>3</sup>, Akinori Saeki<sup>3</sup>, Daisuke Tanaka<sup>2</sup>, Kazuhiko Maeda<sup>1</sup>** (1.Tokyo Tech., 2.Kwansei Gakuin University, 3.Osaka University)

Boosting photocatalytic CO<sub>2</sub> reduction over Pb-S coordination polymer, [Pb(tadt)]<sub>n</sub>, KGF-9, through various synthesis routes

12:10-12:25 2A-06-OR

**\*Philip Petzoldt<sup>1</sup>, Moritz Eder<sup>2</sup>, Anna Lemperle<sup>1</sup>, Clara Aletsee<sup>1</sup>, Paula Neumann<sup>1</sup>, Lucia Mengel<sup>1</sup>, Martin Tschurl<sup>1</sup>, Ueli Heiz<sup>1</sup>** (1.Technical University of Munich, 2.Technische Universität Wien)

Closing the Pressure Gap in Photocatalysis

(Lunch Break)

[Chair : Jye-Shane Yang, Manabu Abe]

14:30-14:45 2A-07-OR

**\*Yuu Shioiri<sup>1</sup>, Keisuke Obata<sup>1</sup>, Yudai Kawase<sup>1</sup>, Tomohiro Higashi<sup>2</sup>, Masao Katayama<sup>1</sup>, Kazuhiro Takanabe<sup>1</sup>** (1.The University of Tokyo, 2.University of Miyazaki)

Quantitative estimation of quasi-Fermi level of holes at the surface of semiconductor photoanodes

14:45-15:00 2A-08-OR

**\*Rhauane Almeida Galvao<sup>1</sup>, Swarnava Nandy<sup>1</sup>, Akio Hirako<sup>1</sup>, Junie Jhon Vequizo<sup>1</sup>, Takashi Hisatomi<sup>1, 2</sup>, Akira Yamakata<sup>3</sup>, Kazunari Domen<sup>1</sup>** (1.Shinshu University, 2.PRESTO-JST, 3.Okayama University)

Effect of surface modification of SrTaO<sub>2</sub>N on the carrier dynamics and Z-scheme water splitting activity

15:00-15:15 2A-09-OR

**\*Hamad Almohamadi<sup>1</sup>, M. Mottakin<sup>2</sup>, Vidhya Selvanathan<sup>3</sup>, Md. Akhtaruzzaman<sup>1</sup>** (1.Islamic University of Madinah, 2.Universiti Kebangsaan Malaysia (UKM), 3.Universiti Tenaga Nasional (The Energy University))

Design of a Transition Metal Sulfides-Based Electrocatalyst for Efficient Oxygen Evolution Reaction

15:15-15:30 2A-10-OR

**\*Haruka Yamamoto<sup>1</sup>, Yugo Miseki<sup>2</sup>, Megumi Okazaki<sup>1</sup>, Kazuhiro Sayama<sup>2</sup>, Thomas E. Mallouk<sup>3</sup>, Kazuhiko Maeda<sup>1</sup>** (1.Tokyo Tech., 2.AIST, 3.University of Pennsylvania)

Anionic polymer modification of dye-sensitized TiO<sub>2</sub> for improved Z-scheme water splitting

15:30-15:45 2A-11-OR

**\*Suraj Gupta<sup>1</sup>, Nina Daneu<sup>1</sup>, Jeffrey C. S. Wu<sup>2</sup>, Matjaž Spreitzer<sup>1</sup>, Marjeta Maček Kržmanc<sup>1</sup>** (1.Jozef Stefan Institute, 2.National Taiwan University)

Tailoring two-dimensional photocatalysts for efficient solar hydrogen generation

15:45-16:00 2A-12-OR

**\*Yue Jiang<sup>1</sup>, Sajjad S. Mofarah<sup>1</sup>, Danyang Wang<sup>1</sup>, Pramod Koshy<sup>1</sup>, Charles C. Sorrell<sup>1</sup>** (1.University of New South Wales)

Piezo-Photocatalysis – A Promising Strategy for Energy Conversion

16:00-16:15 2A-13-OR

**\*Denny Gunawan<sup>1</sup>** (1.The University of New South Wales)

Upscaling Photoreforming of Organic Feedstocks for Solar Hydrogen Production: Material Design, Reactor Engineering, and Cost Analysis

(Break)

[Chair : Anna D Gudmundsdottir, Tomoko Yajima]

16:25-16:40 2A-14-OR

**\*Makoto Ogawa<sup>1</sup>, Hajime Suzuki<sup>1</sup>, Osamu Tomita<sup>1</sup>, Akinobu Nakada<sup>1</sup>, Akinori Saeki<sup>2</sup>, Ryu Abe<sup>1</sup>** (1.Kyoto University, 2.Osaka University)

Flux-Assisted Synthesis of Layered Perovskite Oxyiodide Photocatalyst for Improved O<sub>2</sub> Evolution under Visible Light

16:40-16:55 2A-15-OR

**\*Yagna Prakash Bhoi<sup>1</sup>, Kexin Zou<sup>1</sup>, Haifan Huang<sup>1</sup>, Ohama Akeru<sup>1</sup>, Akira Yamamoto<sup>1</sup>, Hisao Yoshida<sup>1</sup>** (1.Kyoto University)

Dehalogenative deuteration of organic halides using palladium loaded TiO<sub>2</sub> photocatalyst and D<sub>2</sub>O as green deuterium source

16:55-17:10 2A-16-OR

**\*Sushu Zhang<sup>1</sup>, Jingyu Wang<sup>1</sup>** (*1.Huazhong University of Science and Technology*)

Identifying and eliminating the interference of surface carbon residues with CO<sub>2</sub> conversion on photocatalyst

17:10-17:25 2A-17-OR

**\*Bunsho Ohtani<sup>1</sup>, Mai Takashima<sup>2</sup>** (*1.Nonprofitable Organization touche NPO, 2.Nagoya University*)

DNA beyond fingerprint: Whole structural characterization of titania powders only using their electron trap-distribution patterns

17:25-17:40 2A-18-OR

**\*Chechia Hu<sup>1</sup>, Fang-Ting Tao<sup>2</sup>, Kuo-Lun Tung<sup>2</sup>** (*1.National Taiwan University of Science and Technology, 2.National Taiwan University*)

Ultrafast synthesis of N-doped reduced TiO<sub>2</sub> by atmospheric plasma spraying for photocatalytic degradation of tetracycline and ciprofloxacin

----- July 30, 2024 (Tuesday) Room B-----

[Chair :Takahiro Kojima, Hiroaki Misawa]

10:30-11:00 2B-01-KL

**\*Tomoya Oshikiri<sup>1,2</sup>** (1.Tohoku University, 2.Hokkaido University)

Visible light active photocathode under modal coupling regime

11:00-11:25 2B-02-IL

**\*Akinobu Nakada<sup>1,2</sup>** (1.Kyoto University, 2.PRESTO/JST)

Tailor-Made Photocatalysts Constructed with Conjugated Polymers and Metal Complexes for CO<sub>2</sub> Reduction

11:25-11:40 2B-03-OR

**\*Ryo Koibuchi<sup>1</sup>, Isao Yoshikawa<sup>1</sup>, Hirohiko Houjou<sup>1</sup>** (1.The University of Tokyo)

Photoinduced Crystal-to-Liquid Transition based on the Solid-State Photoreaction of Acylhydrazone-Based Photoswitching Molecules

11:40-11:55 2B-04-OR

**\*Shunsuke Sato<sup>1</sup>, Keita Sekizawa<sup>1</sup>, Soichi Shirai<sup>1</sup>, Naonari Sakamoto<sup>1</sup>, Takeshi Morikawa<sup>1</sup>** (1.Toyota Central R&D labs. Inc.)

Enhanced performance of molecular electrocatalysts for CO<sub>2</sub> reduction by cations and highly efficient reaction to reduce CO<sub>2</sub> using sunlight using PV-EC System

(Lunch Break)

[Chair : Tomoya Oshikiri, Yasuomi Yamazaki]

14:30-15:00 2B-05-KL

**\*Masaaki Kitano<sup>1</sup>** (1.Tokyo Tech.)

Development of highly active solid catalysts with functional anion sites for green ammonia synthesis

15:00-15:15 2B-06-OR

**\*Kosei Yamauchi<sup>1</sup>, Masanori Kan<sup>1</sup>, Ken Sakai<sup>1</sup>** (1.Kyushu University)

Co-NHC Catalysts Promoting Hydrogen Evolution from Water with High Turnover Frequency

15:15-15:30 2B-07-OR

**\*Roland Marschall<sup>1</sup>** (1.University of Bayreuth)

Light-induced nitrogen reduction (NRR) with earth-abundant photocatalysts

(Break)

[Chair : Masaaki Kitano, Akinobu Nakada]

16:25-16:55 2B-08-KL

**\*Takahiko Kojima<sup>1</sup>** (1.University of Tsukuba)

Photocatalytic CO<sub>2</sub> reduction by metal complexes in high selectivity and efficiency

16:55-17:20 2B-09-IL

**\*Yasuomi Yamazaki<sup>1</sup>, Taro Tsubomura<sup>2</sup>, Yoshiaki Nishibayashi<sup>1</sup>** (1.The University of Tokyo, 2.Seikei University)

Solvent Effect on Photocatalytic CO<sub>2</sub> Reduction Using Metal Complexes



17:20-17:35 2B-10-OR

**\*Hiromu Kumagai<sup>1</sup>, Tsutomu Minegishi<sup>1</sup>, Hiroji Ebe<sup>1</sup>, Masakazu Sugiyama<sup>1</sup>** (*1.The University of Tokyo*)

Electrochemical Reduction of CO<sub>2</sub> using Al, K-added CuO Catalyst

17:35-17:50 2B-11-OR

**Jukai Zhou<sup>1</sup>, Weixuan Nie<sup>1, 2</sup>, Mohammed Waseem Hussain<sup>1</sup>, Drew Tarnopol Tarnopol<sup>1</sup>,  
\*Charles Chauncey Luther McCrory<sup>1</sup>** (*1.University of Michigan, 2.Westlake University*)

Breaking Scaling Relationships in Molecular Electrocatalysis for the CO<sub>2</sub> Reduction Reaction

----- July 30, 2024 (Tuesday) Room C-----

[Chair : Hui Seon Kim, Liang Wang]

10:30-11:00 2C-01-KL

**\*Prashant V Kamat<sup>1</sup>** (*1. University of Notre Dame*)

Ion Migration in Metal Halide Perovskites and Its Impact on Solar Cell Performance

11:00-11:25 2C-02-IL

**\*Akinori Saeki<sup>1</sup>** (*1. Osaka University*)

Development of solution-processed Bi/Sb solar cells using automated experiments

11:25-11:50 2C-03-IL

**\*Satoshi Uchida<sup>1</sup>, Hiroshi Segawa<sup>1</sup>** (*1. The University of Tokyo*)

Nanoscope Observation of Perovskite Solar Cell by FIB/TEM System

11:50-12:15 2C-04-IL

**\*Marina Freitag<sup>1</sup>** (*1. Newcastle University*)

Tailoring Charge Transport in Mixed-Valence Coordination Polymers for Molecular PV

(Lunch Break)

[Chair : Qing Shen, Tsutomu Miyasaka]

14:30-15:00 2C-05-KL

**\*Sang Il Seok<sup>1</sup>** (*1. UNIST*)

Advancements in Perovskite and Electron Transport Layers for High-Efficiency Solar Cells

15:00-15:25 2C-06-IL

**\*Tingli Ma<sup>1</sup>** (*1. Kyushu Institute of Technology*)

Development of materials for perovskites solar cells

15:25-15:40 2C-07-OR

**\*Kei Ito<sup>1</sup>, Kazuteru Nonomura<sup>1</sup>, Ryota Kan<sup>1</sup>, Keishi Tada<sup>1</sup>, Ching Chang Lin<sup>1</sup>, Takumi Kinoshita<sup>1</sup>, Takeru Bessho<sup>1</sup>, Satoshi Uchida<sup>1</sup>, Hiroshi Segawa<sup>1</sup>** (*1. The University of Tokyo*)

Spectral Splitting Two-junction Solar Cells Consisting of a Mesoscopic Wide-Bandgap Perovskite Solar Cell and an Inverted Narrow-Bandgap Perovskite Solar Cell

15:40-16:05 2C-08-IL

**\*Hideo Ohkita<sup>1</sup>** (*1. Kyoto University*)

Ternary blend polymer solar cells for improved light-harvesting and charge transport

[Chair : Tingli Ma, Hideo Ohkita]

16:25-16:55 2C-09-KL

**\*Hyun Suk Jung<sup>1</sup>** (*1. SKKU*)

Eco-friendly Materials and Process for Sustainable Perovskite Solar Cells

16:55-17:20 2C-10-IL

**\*Qing Shen<sup>1</sup>** (*1. The University of Electro-Communications*)

Colloidal Quantum Dots: Synthesis, Optical Property and Application to Solar Cells

17:20-17:35 2C-11-OR

**\*Yinglin Wang<sup>1</sup>, Chao Wang<sup>1</sup>, Zihan Wang<sup>1</sup>, Xinlu Liu<sup>1</sup>, Xintong Zhang<sup>1</sup>** (*1. Northeast Normal University*)

Stable PbS Quantum Dot Inks Enables High-Efficiency Photovoltaics

17:35-17:50 2C-12-OR

**\*Liang Wang<sup>1</sup>, Qing Shen<sup>1</sup>, Shuzi Hayase<sup>1</sup>** (*1. The University of Electro-Communications*)

Management of Energy Level Alignment Enables Over 15% Device performance for Tin-based Perovskite Solar Cells

----- July 30, 2024 (Tuesday) Room D-----

[Chair : Yasuhiro Kobori, Pravas Deria]

10:30-11:00 2D-01-KL

**\*Yasuhiro Kobori<sup>1</sup>** (*1.Kobe University*)

Molecular Vibronic Control of Exciton Pairs: Transient EPR Study

11:00-11:25 2D-02-IL

**\*Jianzhang Zhao<sup>1</sup>** (*1.Dalian University of Technology*)

Preparation of Compact Electron Donor-Acceptor Dyads and Study of the Long-Lived Charge Separation State with Transient Optical and Electron Paramagnetic Resonance Spectroscopies

11:25-11:50 2D-03-IL

**\*Ayumi Ishii<sup>1</sup>** (*1.Waseda University*)

Circularly polarized light detection with spin polarization in one-dimensional helical perovskite

11:50-12:15 2D-04-IL

**\*Pravas Deria<sup>1</sup>** (*1.Southern Illinois University Carbondale*)

Energy and Electron Transfer Processes in Metal-Organic Frameworks

(Lunch Break)

[Chair : Kirk Schanze, Hiroshi Imahori]

14:30-15:00 2D-05-KL

**\*Kirk Schanze<sup>1</sup>** (*1.University of Texas at San Antonio*)

Photophysics and Electron Transfer Reactivity of Ion-Radical Photocatalysts

15:00-15:25 2D-06-IL

**\*Nikos Tagmatarchis<sup>1</sup>** (*1.Theoretical and Physical Chemistry Institute, National Hellenic Research Foundation*)

Functionalization of transition metal dichalcogenides and hybrids for energy conversion

15:25-15:40 2D-07-OR

**\*Yusuke Kuramochi<sup>1,2</sup>** (*1.Tokyo University of Science, 2.The University of Tokyo*)

Photocatalytic CO<sub>2</sub> reduction by Zn porphyrin and Re complex in close proximity

15:40-15:55 2D-08-OR

**\*Hiroshi Imahori<sup>1</sup>** (*1.Kyoto University*)

Dynamic Exciton: Manipulation of Locally-Excited, Charge-Transfer, and Charge-Separated States

(Break)

[Chair : Etsuji Tsuji, Shigeru Ikeda]

16:25-16:50 2D-09-IL

**\*Hiroyasu Nishi<sup>1</sup>** (*1.University of Toyama*)

Photoelectrochemical Fabrication of Metal and Compound Nanostructures

16:50-17:15 2D-10-IL

**\*Akira Yamakata<sup>1</sup>** (*1.Okayama University*)

Defect Engineering for Prominent Photocatalytic Reactions

17:15-17:30 2D-11-OR

**\*Kenji Katayama<sup>1</sup>, Yuya Nagai<sup>1</sup>, Zhenhua Pan<sup>1</sup>** (*1.Chuo University*)

Machine Learning Combined with Analytical Sciences to Optimize Photocatalytic Materials

17:30-17:45 2D-12-OR

**Juan Carlos Expósito-Gálvez<sup>1</sup>, Francisco J. Peón-Díaz<sup>2, 3</sup>, Ludek Hromadko<sup>4, 5</sup>, Marcela Sepúlveda<sup>4</sup>, Sayda Dinorah Coria-Quiñones<sup>6</sup>, Deimer R. Gómez-Mejía<sup>6</sup>, Omar Jiménez-Sandoval<sup>6</sup>, Jan M. Macak<sup>4, 5</sup>, \*Gerko Oskam<sup>1, 7</sup>** (*1.Universidad Pablo de Olavide, 2. Universidad de Valparaíso, 3.Universidad Técnica Federico Santa María – Universidad de Valparaíso, 4.University of Pardubice, 5.Brno University of Technology, 6.CINVESTAV-IPN, Querétaro, 7.CINVESTAV-IPN, Mérida*)

Metal oxide materials for photoelectrochemical water splitting: elucidation of performance-limiting processes using intensity-modulated photocurrent spectroscopy

----- July 30, 2024 (Tuesday) Room E-----

~~ "Meso-Hierarchy" Session ~~

[Chair : Ryu Abe, Shengnan Duan]

10:30-11:00 2E-01-KL

**\*Taku Hasobe<sup>1</sup>** (*1.Keio University*)

Construction of Molecular Architectures for High-Yield Singlet Fission

11:00-11:25 2E-02-IL

**\*Sadahiro Masuo<sup>1</sup>** (*1.Kwansei Gakuin University*)

Energy transfer in quantum dot-organic molecule systems toward effective utilization of solar energy

11:25-11:50 2E-03-IL

**\*Takatoshi Fujita<sup>1</sup>** (*1.National Institutes for Quantum Science and Technology*)

Theoretical study of charge photogeneration dynamics in organic photovoltaics

11:50-12:15 2E-04-IL

**\*Hikaru Sotome<sup>1</sup>, Sho Takahashi<sup>2</sup>, Shiki Yagai<sup>2</sup>, Hiroshi Miyasaka<sup>1</sup>** (*1.Osaka University, 2.Chiba University*)

Time-resolved spectroscopic tracking of exciton diffusion dynamics in mesoscale molecular assemblies

(Break)

[Chair : Teruhisa Ohno, Chenliang Su]

14:30-15:00 2E-05-KL

**\*Bin Liu<sup>1</sup>** (*1.City University of Hong Kong*)

Probing CO<sub>2</sub> Reduction Reaction under Operando Condition

15:00-15:30 2E-06-KL

**\*Lianzhou Wang<sup>1</sup>** (*1.The University of Queensland*)

Semiconductor photoelectrodes for photoelectrochemical energy conversion

15:30-15:55 2E-07-IL

**\*Takashi Hisatomi<sup>1</sup>** (*1.Shinshu University*)

Synthesis of narrow band gap GaN:ZnO solid solutions for photocatalytic water splitting

(Break)

[Chair : Hitoshi Tamiaki, Lianzhou Wang]

16:25-16:55 2E-08-KL

**\*Chenliang Su<sup>1</sup>** (*1.Shenzhen University*)

Semiconductor Photo-redox Catalysis for Mild Synthesis of Fine Chemicals and Pharmaceuticals

16:55-17:20 2E-09-IL

**\*Masayuki Yagi<sup>1</sup>, Zaki N. Zahran<sup>1</sup>, Tomohiro Katsuki<sup>1</sup>, Yuta Tsubonouchi<sup>1</sup>, Norihisa Hoshino<sup>1</sup>, Debraj Chandra<sup>1</sup>** (*1.Niigata University*)

Efficient N-doped CuWO<sub>4</sub> photoanode and CuBi<sub>2</sub>O<sub>4</sub> photocathode fabricated by mixed metal imidazole-complexes for solar energy conversion

17:20-17:45 2E-10-IL

**\*Tomiko Suzuki<sup>1</sup>, Takeshi Morikawa<sup>1</sup>** (*1. Toyota Central R&D Labs., Inc.*)

Aqueous Z-scheme photocatalytic CO<sub>2</sub> reduction by particulate semiconductors and a metal-complex

17:45-18:00 2E-11-OR

**\*Hitoshi Ishida<sup>1</sup>, Taisei Monji<sup>1</sup>, Rikuto Hayashi<sup>1</sup>, Minami Otsuka<sup>1</sup>, Akane Yokota<sup>1</sup>** (*1. Kansai University*)

Photocatalytic CO<sub>2</sub> reduction by ruthenium complexes in aqueous micellar solutions

----- July 31, 2024 (Wednesday) Room A -----

[Chair : Greg Metha, Manabu Abe]

10:30-10:45 3A-01-OR

**Yudai Kawase<sup>1</sup>, \*Keisuke Obata<sup>1</sup>, Yuu Shioiri<sup>1</sup>, Tomohiro Higashi<sup>2</sup>, Kazuhiro Takanabe<sup>1</sup>** (1. *The University of Tokyo*, 2. *University of Miyazaki*)

Clarification of the electrochemical potential of electrocatalysts on particulate photocatalysts during water splitting

10:45-11:00 3A-02-OR

**\*Takashi Nakazono<sup>1</sup>, Ryo Mitsuda<sup>1</sup>, Yusuke Yamada<sup>1</sup>** (1. *Osaka Metropolitan University*)

Catalytic activity and mechanism of cobalt chlorin complex for photocatalytic water oxidation

11:00-11:15 3A-03-OR

**\*Ryuzi Kato<sup>1</sup>, Yuuki Tomitsuka<sup>1</sup>, Takeru Saito<sup>1</sup>** (1. *Nihon University*)

Origin of luminescence of anatase TiO<sub>2</sub> photocatalysts

11:15-11:30 3A-04-OR

**\*Yusuke Seki<sup>1</sup>, Takashi Nakazono<sup>1</sup>, Yusuke Yamada<sup>1</sup>** (1. *Osaka Metropolitan University*)

Solubilization of a Coordination Polymer for Boosting Visible-Light-Driven Water Oxidation by Depolymerization

11:30-11:45 3A-05-OR

**\*Sunghan Choi<sup>1</sup>, Naoki Hosokawa<sup>2</sup>, Toshiya Tanaka<sup>2</sup>, Deahan Lee<sup>3</sup>, Ho-jin Son<sup>3</sup>, Osamu Ishitani<sup>1</sup>** (1. *Hiroshima University*, 2. *Tokyo Tech.*, 3. *Korea University*)

Red-light driven photocatalytic CO<sub>2</sub> reduction promoted by Os-Photosensitizer and Catalytic TiO<sub>2</sub>/Re(I) Particles

11:45-12:00 3A-06-OR

**\*Jingyu Wang<sup>1</sup>, Zhongjie Cai<sup>1</sup>, Can Wu<sup>1</sup>** (1. *Huazhong University of Science and Technology*)

Enhanced Adsorption for Photocatalytic Conversion of CO<sub>2</sub> at Low Concentration

12:00-12:15 3A-07-OR

**\*Vladimir Golovko<sup>1</sup>, Alex Yip<sup>2</sup>, Burapat Inceesungvorn<sup>3</sup>, Chung-Shin Lu<sup>4</sup>, Michael Reid<sup>1</sup>, Jon-Paul Wells<sup>1</sup>** (1. *University of Canterbury*, 2. *University of Canterbury*, 3. *Chiang Mai University*, 4. *National Taichung University of Science and Technology*)

Selected examples of the photoactive materials: from efficient photocatalysts operating under mild conditions to Ln-doped upconverting nanoparticles



----- July 31, 2024 (Wednesday) Room B -----

[Chair : Kazuhiko Maeda, Yuichiro Himeda]

10:30-11:00 3B-01-KL

**\*Yutaka Amao<sup>1</sup>** (*1.Osaka Metropolitan University*)

Biodegradable polymer precursor synthesis from carbon dioxide with photo/biocatalyst hybrid system

11:00-11:25 3B-02-IL

**\*Mio Kondo<sup>1</sup>** (*1.Tokyo Tech.*)

Molecular Assembly for Small Molecule Conversions

11:25-11:50 3B-03-IL

**\*Shoji Iguchi<sup>1</sup>, Shuying Wang<sup>1</sup>, Takechi Nakamoto<sup>1</sup>, Shimpei Naniwa<sup>1</sup>, Kentaro Teramura<sup>1</sup>**  
(*1.Kyoto University*)

Development of photocatalysts for selective conversion of CO<sub>2</sub> with H<sub>2</sub>O

11:50-12:15 3B-04-IL

**\*Megumi Okazaki<sup>1</sup>, Yasuomi Yamazaki<sup>2</sup>, Kazuhiko Maeda<sup>1</sup>** (*1.Tokyo Tech., 2.The University of Tokyo*)

A trigger potential proceeding water oxidation over metal oxide catalysts with Ru(II) photosensitizer complexes

----- July 31, 2024 (Wednesday) Room C -----

[Chair : Atsushi Wakamiya, Cojocarú Ludmila]

10:30-11:00 3C-01-KL

**\*Yanfa Yan<sup>1</sup>, Zhaoning Song<sup>1</sup>, Sheng Fu<sup>1</sup>, Nannan Sun<sup>1</sup>, Chongwen Li<sup>1</sup>, Lei Chen<sup>1</sup>**  
(1. *University of Toledo*)

Perovskite-perovskite tandem photoelectrodes for efficient solar water-splitting

11:00-11:25 3C-02-IL

**\*Jin Young Kim<sup>1</sup>** (1. *Seoul National University*)

Perovskite-based tandems: Perovskite/Si 2J and beyond

11:25-11:50 3C-03-IL

**\*Itaru Osaka<sup>1</sup>** (1. *Hiroshima University*)

Unconventional Polymer Order in Donor-Acceptor Blends: Efficient Charge Separation and Charge Transport in Organic Photovoltaics

11:50-12:05 3C-04-OR

**\*Hui-Hsu Gavin Tsai<sup>1</sup>, Jian-Ming Liao<sup>1</sup>** (1. *National Central University*)

Interpretable Machine Learning for Advanced High-Throughput Design of Non-Fullerene Ternary OSCs and Porphyrin-based DSCs

12:05-12:20 3C-05-OR

**\*Jean V. Manca<sup>1</sup>, Jeroen Hustings<sup>1</sup>, Nico Fransaert<sup>1</sup>, Allyson Robert<sup>1</sup>, Willem Awouters<sup>1</sup>, Marieke Vereycken<sup>1</sup>, Alessandro Romano<sup>1</sup>, Roland Valcke<sup>2</sup>** (1. *UHasselt, X-LAB*, 2. *UHasselt, Molecular and Physical Plant Physiology*)

Nature versus Emerging Photovoltaics & the Photovoltaic Girl with the Pearl Earring

----- July 31, 2024 (Wednesday) Room D -----

[Chair : Hiroko Yamada, Mahesh Hariharan]

10:30-11:00 3D-01-KL

**\*Mahesh Hariharan<sup>1</sup>** (*1.IISER Thiruvananthapuram*)

Null Excitonic Interaction in Greek Cross (+) Aggregate

11:00-11:25 3D-02-IL

**\*Hiroko Yamada<sup>1</sup>** (*1.Kyoto University*)

Synthesis of higher acenes using photoprecursor approach

11:25-11:50 3D-03-IL

**\*Kei Murata<sup>1</sup>, Yuki Saibe<sup>1</sup>, Mayu Uchida<sup>1</sup>, Mizuki Aono<sup>1</sup>, Ryuji Misawa<sup>1</sup>, Yoshiho Ikeuchi<sup>1</sup>, Kazuyuki Ishii<sup>1</sup>** (*1.The University of Tokyo*)

Red Light Uncaging of Alkyl Radicals from Organorhodium(III) Phthalocyanine Complexes

11:50-12:05 3D-04-OR

**\*Saemi Takahashi<sup>1, 2</sup>, Satoshi Uchida<sup>2</sup>, Hiroshi Segawa<sup>2, 1</sup>** (*1.RATO, 2.The University of Tokyo*)

Influence of Chloride Incorporation on Intermediate Phase and Crystallinity in Methylammonium Lead Halide Perovskites

12:05-12:20 3D-05-OR

**\*Han Zhong<sup>1</sup>, Hong Lin<sup>1</sup>** (*1.Tsinghua University*)

Modulating crystallization by crown ether for wide-bandgap perovskite solar cells

----- July 31, 2024 (Wednesday) Room E -----

[Chair : Osamu Ishitani, Masayuki Yagi]

10:30-11:00 3E-01-KL

**\*Hitoshi Tamiaki<sup>1</sup>, Yuna Mori<sup>1</sup>, Kengo Nakakuki<sup>1</sup>, Yamato Hashimoto<sup>1</sup>** (*1.Ritsumeikan University*)

Artificial light-harvesting systems as models of photosynthetic antennas in green bacteria

11:00-11:25 3E-02-IL

**\*Shigeyuki Masaoka<sup>1</sup>** (*1.Osaka University*)

Development of Molecular Catalysts for Photosynthetic Reactions

11:25-11:50 3E-03-IL

**\*Daisuke Kosumi<sup>1</sup>, Masatoshi Kida<sup>1</sup>, Yuma Hirota<sup>1</sup>, Keisuke Kawakami<sup>2</sup>, Koji Yonekura<sup>2</sup>, Nobuo Kamiya<sup>3</sup>** (*1.Kumamoto University, 2.SPring-8, RIKEN, 3.Osaka Metropolitan University*)

Quantum coherence in cyanobacterial photosynthetic antenna phycobilisome

11:50-12:15 3E-04-IL

**\*Miwa SUGIURA<sup>1</sup>** (*1.Ehime University*)

Tuning and role of chlorophylls bound to Photosystem II reaction center

----- August 1, 2024 (Thursday) Room A-----

[Chair : Hiromi Yamashita, Manabu Abe]

10:45-11:00 4A-01-OR

**\*Yutaka Takaguchi<sup>1</sup>, Arif Efendi<sup>1</sup>, Van Ninh Tran<sup>1</sup>, Mariko Yukimoto<sup>1</sup>, Tomoki Matsuura<sup>2</sup>, Tomoyuki Tajima<sup>2</sup>** (1.University of Toyama, 2.Okayama University)  
MoSe<sub>2</sub>-sensitized water splitting assisted by C<sub>60</sub>-dendron on the basal surface

11:00-11:15 4A-02-OR

**\*Greg Metha<sup>1</sup>, Talib Rahman<sup>1</sup>, D.J. Osborn<sup>1</sup>, Gunther Andersson<sup>2</sup>, Hiroki Nishiyama<sup>4</sup>, Takashi Hisatomi<sup>3</sup>, Kazunari Domen<sup>4</sup>** (1.University of Adelaide, 2.Flinders University, 3.Shinshu University, 4.University of Tokyo)  
Performance of Al:TiO<sub>3</sub> photocatalyst sheet under intense UV irradiation and increased temperature

11:15-11:30 4A-03-OR

**\*Ryota Shoji<sup>1</sup>, Vikas Nandal<sup>2</sup>, Hiroyuki Matsuzaki<sup>1</sup>, Kazuhiko Seki<sup>2</sup>, Hiroaki Yoshida<sup>3</sup>, Lishua Lin<sup>4</sup>, Xiaoping Tao<sup>4</sup>, Chen Gu<sup>4</sup>, Tsuyoshi Takata<sup>4</sup>, Takashi Hisatomi<sup>4</sup>, Akihiro Furube<sup>5</sup>, Kazunari Domen<sup>4, 6</sup>** (1.Research Institute for Material and Chemical Measurement, AIST, 2.Global Zero Emission Research Center, AIST, 3.Mitsubishi Chemical Corp., 4.Shinshu University, 5.Tokushima University, 6.Tokyo University)  
Correlation between photocatalytic activity and material parameters of oxysulfide photocatalysts; quantitative evaluation by transient absorption spectroscopy and theoretical analysis

11:30-11:45 4A-04-OR

**\*Vikas Nandal<sup>1</sup>, Ryota Shoji<sup>1</sup>, Hiroyuki Matsuzaki<sup>1</sup>, Xiaoping Tao<sup>2</sup>, Akihiro Furube<sup>3</sup>, Takashi Hisatomi<sup>2</sup>, Hiroaki Yoshida<sup>4, 5</sup>, Tsuyoshi Takata<sup>2</sup>, Masanori Kaneko<sup>6</sup>, Koichi Yamashita<sup>6</sup>, Kazunari Domen<sup>2, 7</sup>, Kazuhiko Seki<sup>1</sup>** (1.AIST, 2.Shinshu University, 3.Tokushima University, 4.Mitsubishi Chemical Corporation, 5.ARPChem, 6.Yokohama City University, 7.The University of Tokyo)  
Quantifying the prospect of visible-light-absorbing particulate oxysulfide photocatalyst by probing transient absorption and photoluminescence

11:45-12:00 4A-05-OR

**\*Dominik Eder<sup>1</sup>, Shaghayegh Naghdi<sup>1</sup>, Jia Wang, Pablo Ayala<sup>1</sup>, Alexey Cherevan<sup>1</sup>** (1.Technische Universität Wien)  
SELECTIVE LIGAND REMOVAL AS A POWERFUL STRATEGY TOWARDS ADVANCED PHOTOCATALYSTS

12:00-12:15 4A-06-OR

**\*Congcong Xing<sup>1</sup>, Tianqi Liu<sup>1</sup>, Yong Gao<sup>1</sup>, Xiaolei Fan<sup>1</sup>** (1.Zhejiang University)  
Length and Temperature Optimization for Efficient Hydrogen Production in Brookite-phase TiO<sub>2</sub> Nanorods

(Break)

[Chair : Vladimir Golovko, Manabu Abe]

14:30-14:45 4A-07-OR

**\*Hajime Suzuki<sup>1</sup>, Toshiki Abe<sup>1</sup>, Takahide Otsubo<sup>1</sup>, Yasunori Watanabe<sup>1</sup>, Osamu Tomita<sup>1</sup>, Masanobu Higashi<sup>1</sup>, Akinori Saeki<sup>2</sup>, Ryu Abe<sup>1</sup>** (1.Kyoto University, 2.Osaka University)

Arc Plasma Deposition as an Effective Method for Loading Highly Active Nanococatalysts onto Photocatalysts for Efficient H<sub>2</sub> Evolution

14:45-15:00 4A-08-OR

**\*Jérôme Fortage<sup>1</sup>, Lucile Termeau<sup>1</sup>, Juan Aguirre-Araque<sup>1</sup>, Fakourou Camara<sup>1</sup>, Philippe Lainé<sup>2</sup>, Marie-Noëlle Collomb<sup>1</sup>** (1.Université Grenoble Alpes, CNRS, 2.Université de Paris, CNRS)

DuBois-type nickel phosphine catalyst vs cobalt tetraazamacrocyclic catalyst for light-driven H<sub>2</sub> production in water combined with the organic dye triazatriangulenium

15:00-15:15 4A-09-OR

**\*Tsubasa Mikie<sup>1</sup>, Koichiro Hayashi<sup>1</sup>, Chiyu Fujita<sup>1</sup>, Itaru Osaka<sup>1</sup>** (1.Hiroshima University)

Organic p/n Heterojunction Nanoparticles Based on A Crystalline Semiconducting Polymer for Efficient Photocatalytic Hydrogen Evolution

15:15-15:30 4A-10-OR

**\*Yasuhiko Takeda<sup>1</sup>, Tamoko M Suzuki<sup>1</sup>, Shunsuke Sato<sup>1</sup>, Takeshi Morikawa<sup>1</sup>** (1.Toyota Central R&D Labs., Inc.)

Solar-spectrum splitting for photocatalytic reactors used for artificial photosynthesis

15:30-15:45 4A-11-OR

**Jeiwan Tan<sup>1</sup>, Demelza Wright<sup>1</sup>, Md Azimul Haque<sup>1</sup>, Debjit Ghoshal<sup>1</sup>, Trung Huu Lee<sup>1</sup>, Michelle Smeaton<sup>1</sup>, Katie Jungjohann<sup>1</sup>, Elisa M. Miller<sup>1</sup>, Nathan R. Neale<sup>1</sup>, \*Jao van de Lagemaat<sup>1</sup>** (1.National Renewable Energy Laboratory)

Controlling water splitting using chirality-induced spin in electrocatalysis

(Break)

[Chair : Hajime Suzuki, Manabu Abe]

16:25-16:40 4A-13-OR

**\*Atsushi Kobayashi<sup>1</sup>** (1.Hokkaido University)

Photoredox cascade catalytic system for solar hydrogen production during oxidation transformations of organic substrates

16:40-16:55 4A-14-OR

**\*Wenjing Song<sup>1</sup>, Tongtong Jia, Bangrong Ming, Jincui Zhao** (1.Institute of Chemistry Chinese Academy of Sciences)

Tailoring one- or two- electron transfer over single Ni site in the light-driven reduction of organohalides

16:55-17:10 4A-15-OR

**\*Kazuyuki Ishii<sup>1</sup>** (1.The University of Tokyo)

Photochemical oxygen reactions using phthalocyanines

17:10-17:25 4A-16-OR

**\*Hiromi Yamashita<sup>1</sup>, Yifan Zhao<sup>1</sup>, Yoshifumi Kondo<sup>1</sup>, Yasutaka Kuwahara<sup>1</sup>, Kohsuke Mori<sup>1</sup>**  
(1.Osaka University)

Efficient Photocatalytic H<sub>2</sub>O<sub>2</sub> Production Using Metal-Organic Frameworks and Two-Phase Reaction System

17:25-17:40 4A-17-OR

**\*Xuanyu Wang<sup>1</sup>, Hong Lin<sup>1</sup>** (1.Tsinghua University)

Reciprocity between hollow AgGaS<sub>2</sub> nanoflake-clusters and g-C<sub>3</sub>N<sub>4</sub> sheets enabled by heterojunctions for H<sub>2</sub>O<sub>2</sub> photosynthesis with enhanced activity and stability

17:40-17:55 4A-18-OR

**\*Xintong Zhang<sup>1</sup>** (1.Northeast Normal University)

Activation of surface lattice oxygen boosting photocatalysis over CeO<sub>2</sub>

----- August 1, 2024 (Thursday) Room B-----

[Chair : Ayuko Kitajo, Hayami Takeda]

10:30-11:00 4B-01-KL

**\*Hikari Sakaebe<sup>1</sup>** (*1.Kyushu University*)

Development of high energy battery system and materials without metal resource constraints

11:00-11:25 4B-02-IL

**\*Yuki Oriksa<sup>1</sup>, Mao Matsumoto<sup>1</sup>, Kei Hirabayashi<sup>1</sup>, Yuya Sakka<sup>1</sup>, Yusuke Sakurai<sup>1</sup>**  
(*1.Ritsumeikan University*)

Analysis of Heterogeneous Reactions in Lithium-ion Batteries and All-solid-state Batteries

11:25-11:50 4B-03-IL

**\*Kiho Nishioka<sup>1</sup>** (*1.Kyoto University*)

Identification of the Accurate Location of Insulating Byproducts in Discharge Deposits in Lithium-Oxygen Batteries

(Lunch Break)

[Chair : Hikari Sakaebe, Yuki Oriksa]

14:30-15:00 4B-04-KL

**\*Ayuko Kitajou<sup>1</sup>** (*1.Yamaguchi University*)

Electrochemical properties of aqueous sodium ion batteries using highly concentrated electrolyte adding other solvent

15:00-15:25 4B-05-IL

**\*Hayami Takeda<sup>1</sup>** (*1.Nagoya Institute of Technology*)

Development of solid oxide electrolytes using combination of experimental techniques and materials informatics

(Break)

[Chair : Shinichi Komaba]

16:25-16:50 4B-06-IL

**\*Tomohiro Fukushima<sup>1</sup>** (*1.Hokkaido University*)

Reaction intermediates in the oxygen evolution reaction at Ni-based electrodes

16:50-17:20 4B-07-KL

**\*Kazuhiko Maeda<sup>1</sup>** (*1.Tokyo Tech.*)

Unconventional mixed-anion materials for artificial photosynthesis



----- August 1, 2024 (Thursday) Room C-----

[Chair : Yanfa Yan, Amrita Kumar Sana]

10:30-11:00 4C-01-KL

**\*Atsushi Wakamiya<sup>1</sup>** (*1.Institute for Chemical Research, Kyoto University*)

Charge Collecting and Passivation Materials for Efficient Perovskite Solar Cells

11:00-11:25 4C-02-IL

**\*Zhijun Ning<sup>1</sup>** (*1.ShanghaiTech University*)

Oxidation suppression of tin halide perovskites

11:25-11:55 4C-03-KL

**\*Shuzi Hayase<sup>1</sup>** (*1.The University of Electro-Communications*)

Guidelines for increasing efficiency and durability of tin based solar cells

11:55-12:20 4C-04-IL

**\*Ludmila Cojocar<sup>1</sup>, Yuka Yoshihara<sup>11</sup>, Nilanka Keppetipola<sup>3</sup>, Kamal Kamali<sup>2</sup>, Guido Sonnemann<sup>2</sup>, Thierry Toupance<sup>2</sup>, Ajay Kumar Jena<sup>1</sup>, Satoshi Uchida<sup>1</sup>, Hiroshi Segawa<sup>1</sup>**  
(*1.The University of Tokyo, 2.University of Bordeaux*)

Assessing Sustainable Approaches for Perovskite Solar Cells Fabrication

(Lunch Break)

[Chair : Shuzi Hayase, Elizabeth A Gibson]

14:30-14:55 4C-05-IL

**\*Taisuke Matsui<sup>1</sup>** (*1.Panasonic Holdings Corporation*)

Development of building glass integrated perovskite PV

14:55-15:20 4C-06-IL

**\*Tzu Chien Wei<sup>1, 2</sup>** (*1.National Tsing-Hua University, 2.National Yang Ming Chiao Tung University*)

Study on Production Technology for Perovskite Solar Cells

15:20-15:35 4C-07-OR

**\*JaeHong Park<sup>1</sup>** (*1.Ewha Womans University*)

Identification and Dynamics of Microsecond-Lived Charge-Carriers for CsPbBr<sub>3</sub> Perovskite Quantum Dots, Featuring Ambient Long-Term Stability

15:35-15:50 4C-08-OR

**\*Shahrir Razey Sahamir<sup>1</sup>, Takeru Bessho<sup>2</sup>, Hiroshi Segawa<sup>2</sup>, Qing Shen<sup>1</sup>, Shuzi Hayase<sup>1</sup>**  
(*1.The University of Electro-Communications, 2.The University of Tokyo*)

Adopting bulk heterojunction into tin-lead perovskite solar cells for enhanced Voc and improved overall performance

(Break)

[Chair : Tzu-Chien Wei, Zhijun Ning]

16:25-16:50 4C-09-IL

**\*Amrita Kumar Sana<sup>1</sup>, Mareedu Sreenivasu<sup>1</sup>, Devoju Harinada Chary<sup>1</sup>, Takayuki Shimizu<sup>1</sup>, Katsuya Tsuchimoto<sup>1</sup>, Tsuneaki Watanabe<sup>1</sup>, Junji Nakajima<sup>2</sup>** (1.*IMRA Japan Co., Ltd.*, 2.*AISIN CORPORATION*)

Design and Development of Low-Cost Donor-Acceptor-Donor (D-A-D) Hole Transport Materials for Efficient and Stable Perovskite Solar Cells

16:50-17:15 4C-10-IL

**\*Elizabeth A Gibson<sup>1</sup>, Bening Tirta Muhammad<sup>1</sup>, Amy Neild<sup>1</sup>, Susana Iglesias Porras<sup>1</sup>** (1.*Newcastle University*)

Project ViTAL: Decarbonise power using integrated solar technology

17:15-17:40 4C-11-IL

**\*Hui-Seon Kim<sup>1</sup>** (1.*Inha University*)

Control of lattice strain across  $\alpha$ -FAPbI<sub>3</sub> film

----- August 1, 2024 (Thursday) Room D-----

[Chair : Hiro Minamimoto, Yasunori Matsui]

10:30-11:00 4D-01-KL

**\*Hong Lin<sup>1</sup>, Xuanling Liu<sup>1</sup>, Jianhua Han<sup>1</sup>** (*1. Tsinghua University*)

Design and application of nanomaterials in photodevices

11:00-11:25 4D-02-IL

**\*Fatwa Firdaus Abdi<sup>1</sup>** (*1. City University of Hong Kong*)

Coupling H<sub>2</sub> production and upgrading of chemicals in a photoelectrochemical device

11:25-11:50 4D-03-IL

**\*Tomohiro Higashi<sup>1</sup>** (*1. University of Miyazaki*)

Photoelectrochemical Insights into Water Splitting Efficiency of (Oxy)Nitride-based Photoelectrode

11:50-12:05 4D-04-OR

**\*Yuriy Pihosh<sup>1</sup>, Vikas Nandal<sup>2</sup>, Tomohiro Higashi<sup>3</sup>, Kazuhiko Seki<sup>2</sup>, Kazunari Domen<sup>1</sup>**

(*1. The University of Tokyo, 2. AIST, 3. University of Miyazaki*)

Nanostructured tantalum nitride enabled solar-to-hydrogen production with efficiency more than 10%

12:05-12:20 4D-05-OR

**\*Yosuke Kageshima<sup>1</sup>, Tatsuya Kanazawa<sup>1</sup>, Katsuya Teshima<sup>1</sup>, Kazunari Domen<sup>1, 2</sup>, Hiromasa Nishikiori<sup>1</sup>**

(*1. Shinshu University, 2. The University of Tokyo*)

Efficient hydrogen-evolving photocathodes consisting of Cu<sub>2</sub>Sn<sub>0.38</sub>Ge<sub>0.62</sub>S<sub>3</sub> crystalline particles synthesized via flux method

(Lunch Break)

[Chair : Tomohiro Higashi, Hong Lin]

14:30-15:00 4D-06-KL

**\*Tetsu Tatsuma<sup>1</sup>, Takuya Ishida<sup>1</sup>, Seung Hyuk Lee<sup>1</sup>** (*1. The University of Tokyo*)

Shaping nanomaterials by plasmon and Mie resonances for nanophotonic device fabrication

15:00-15:15 4D-07-OR

**\*Hiro Minamimoto<sup>1</sup>, Yuto Tajiri<sup>1</sup>, Minoru Mizuhata<sup>1</sup>** (*1. Kobe University*)

Investigations of Visible-Light-Driven Reduction Reaction Process at Plasmonic Cathode Electrode

15:15-15:30 4D-08-OR

**\*Debraj Chandra<sup>1</sup>, Yuta Tsubonouchi<sup>1</sup>, Norihisa Hoshino<sup>1</sup>, Zaki Zahran<sup>1</sup>, Masayuki Yagi<sup>1</sup>**

(*1. Niigata University*)

Designed nanoarchitectures of WO<sub>3</sub> photoanode towards efficient solar-driven water oxidation

15:30-15:45 4D-09-OR

**\*Yasunori Matsui<sup>1</sup>, Takumi Takahashi<sup>1</sup>, Masaya Kanoh<sup>1</sup>, Takuya Ogaki<sup>1</sup>, Hiroshi Ikeda<sup>1</sup>** (*1. Osaka Metropolitan University*)

Transient Absorption Spectroscopic Analysis of Energy Transfer Process in the Upconversion System Based on Polymer Composite

(Break)

[Chair : Yosuke Kageshima, Fatwa Firdaus Abdi]

16:25-16:40 4D-10-OR

**\*Etsushi Tsuji<sup>1</sup>, Yoshiki Degami<sup>1</sup>, Hiroyuki Okada<sup>1</sup>, Satoshi Suganuma<sup>1,2</sup>, Naonobu Katada<sup>1</sup>** (1. *Tottori University*, 2. *Hokkaido University*)

Brownmillerite-type  $\text{Ca}_2\text{FeCoO}_5$  as a cocatalyst of  $\text{WO}_3$  photoanode for water splitting

16:40-16:55 4D-11-OR

**\*Renato Gonçalves<sup>1</sup>, Washington Santa Rosa<sup>1</sup>, Victor Zamora Castaneda<sup>1</sup>** (1. *University of Sao Paulo*)

Optimizing  $\text{BiVO}_4/\text{FeNiO}_x$  p-n Heterojunctions via Magnetron Sputtering Deposition to Boost Photoelectrochemical Water Splitting Efficiency

16:55-17:10 4D-12-OR

**\*Marcus Einert<sup>1</sup>, Arslan Waheed<sup>1</sup>, Stefan Lauterbach<sup>2</sup>, Maximilian Mellin<sup>1</sup>, Marcus Rohnke<sup>3</sup>, Lysander Quentin Wagner<sup>3, 4</sup>, Julia Gallenberger<sup>1</sup>, Chuanmu Tian<sup>1</sup>, Bernd Michael Smarsly<sup>3, 4</sup>, Wolfram Jaegermann<sup>1</sup>, Franziska Hess<sup>5</sup>, Helmut Schlaad<sup>6</sup>, Jan Philipp Hofmann<sup>1</sup>** (1. *Technical University of Darmstadt*, 2. *Technical University of Darmstadt*, 3. *Justus Liebig University Giessen*, 4. *Justus-Liebig University*, 5. *Technical University Berlin*, 6. *University of Potsdam*)

Photoelectrochemical and Electrocatalytic Water Oxidation Performance of Sol-Gel-derived Mesoporous High-Entropy Spinel Oxide Thin Films

----- August 1, 2024 (Thursday) Room E-----

[Chair : Yukina Takahashi, Haoxin Mai]

10:30-11:00 4E-01-KL

**\*Reiner Sebastian Sprick<sup>1</sup>** (1. *University of Strathclyde*)

Conjugated polymer photocatalysts for water splitting and carbon dioxide reduction

11:00-11:25 4E-02-IL

**\*Tomoko Yoshida<sup>1</sup>, Muneaki Yamamoto<sup>1</sup>, Tomoka Yamamoto<sup>2</sup>, Tetsuo Tanabe<sup>1</sup>** (1. *Nagoya University*, 2. *Osaka Metropolitan University*)

Multiple spectroscopic analyses for understanding functions of solid photocatalysts

11:25-11:50 4E-03-IL

**\*Ji-Hyun Jang<sup>1</sup>** (1. *UNIST*)

Enhancing the charge transport characteristics of hematite via morphology engineering

11:50-12:15 4E-04-IL

**\*Stuart Linley<sup>1</sup>** (1. *McMaster University*)

Floating Catalyst Composites for Solar Reforming

(Lunch Break)

[Chair : Jian-Ren Shen, Reiner Sebastian Sprick]

14:30-15:00 4E-05-KL

**\*Francesca Maria Toma<sup>1, 2</sup>** (1. *Helmholtz Zentrum Hereon*, 2. *Lawrence Berkeley National Laboratory*)

Stable and Efficient Photoelectrodes for Artificial Photosynthesis

15:00-15:25 4E-06-IL

**\*Haoxin Mai<sup>1</sup>, Xuying Li<sup>1</sup>, Rachel Caruso<sup>1</sup>** (1. *RMIT University*)

Development of Visible Light Photocatalysts Assisted by Theoretical Modelling

15:25-15:40 4E-07-OR

**\*Hisao Yoshida<sup>1</sup>, Hongxuan Qiu<sup>1</sup>, Akira Yamamoto<sup>1</sup>** (1. *Kyoto University*)

Modification of calcium titanate photocatalyst by gallium species for carbon dioxide reduction with water

(Break)

[Chair : Masahiro Miyauchi, Licheng Sun]

16:25-16:55 4E-08-KL

**\*Xiao-Feng Wang<sup>1</sup>** (1. *Jilin University*)

Chlorophyll derivative-based devices for photoenergy conversion and storage

16:55-17:20 4E-09-IL

**\*Yukina Takahashi<sup>1</sup>** (1. *Kyushu University*)

Investigation of the role of metal nanoparticles for efficiency improvement of photocatalysts

17:20-17:45 4E-10-IL

**\*Ritsuko Fujii<sup>1</sup>, Soichiro Seki<sup>2</sup>** (1.Osaka Metropolitan University, 2.Osaka City University)

Blue-green light utilization strategy of the siphonaxanthin-type photosynthetic antenna in a marine green alga, *Codium fragile*

# Poster Sessions

----- July 29, 2024 (Monday) 18:10-20:10 Room A -----

- from 18:10 to 19:10 (for presenters given an odd number)
- from 19:10 to 20:10 (for presenters given an even number)

## 1P-01

\***Shikai Chen**<sup>1</sup>, Keita Tosa<sup>1</sup>, Yusheng Li<sup>1</sup>, Shuzi Hayase<sup>1</sup>, Qing Shen<sup>1</sup> (1.*The University of Electro-Communications*)

Synthesis and Light-Emitting Diode Application of Sb<sup>3+</sup>/Mn<sup>2+</sup> Co-Doped with Stable and High Photoluminescence Quantum Yield of Cs<sub>2</sub>NaInCl<sub>6</sub>

## 1P-02

\***Sujun Ji**<sup>1</sup>, Feng Liu<sup>2</sup>, Shuzi Hayase<sup>1</sup>, Qing Shen<sup>1</sup> (1.*The University of Electro-Communications*, 2. *Shandong University*)

Highly Luminescent Phase-Stable Hybrid Manganese Halides for Efficient X-Ray Imaging

## 1P-03

\***Yu Zhe Johnson Wu**<sup>1</sup>, Wenjea Jack Tseng<sup>1</sup> (1.*National Chung Hsing University*)

Effect of Sulfidation Temperature on Preparation of ZnO@ZnS Core-Shell Nanorod Arrays for Enhanced Photocurrent Density and supercapacitor Properties

## 1P-04

\***Marina Doi**<sup>1</sup>, Haonan Liu<sup>1</sup>, Shinji Ando<sup>1</sup> (1.*Tokyo Tech.*)

Diffusion Behavior of Gas Molecules Monitored by the Phosphorescence Processes of Imide Compound Dispersed in Polymer Matrix at Lower Temperatures

## 1P-05

\***Ayuna Nishiyama**<sup>1</sup>, Yuki Nagai<sup>1</sup>, Yoshinori Okayasu<sup>1</sup>, Yoichi Kobayashi<sup>1, 2</sup> (1.*Ritsumeikan University*, 2.*PRESTO JST*)

Two-step photoreduction of anthraquinone derivatives in polysaccharide gels

## 1P-06

\***Masbooth Rasa Melechalil**<sup>1</sup>, Tetsuya Shimada<sup>1</sup>, Tamao Ishida<sup>1</sup>, Shinsuke Takagi<sup>1</sup> (1.*Tokyo Metropolitan University*)

Adsorption Behavior and Electron Injection Efficiencies of Metalloporphyrins on the Titania Nanosheets

## 1P-07

\***Kengo Nagatsuka**<sup>1</sup>, Yuichi Yamaguchi<sup>1, 2</sup>, Akihiko Kudo<sup>1, 2</sup> (1.*Tokyo University of Science*, 2.*CVRC, RIST TUS*)

CO<sub>2</sub> Reduction for Green Syngas Production in an Aqueous Media Using a Photoelectrochemical Cell Utilizing a Black Cu<sub>3</sub>VS<sub>4</sub> Photocathode

1P-08

**\*Masaya Yara**<sup>1</sup>, Teruyuki Honda<sup>1</sup>, Takumi Ehara<sup>1</sup>, Kiyoshi Miyata<sup>1</sup>, Yan Xin<sup>1</sup>, Hironobu Ozawa<sup>1</sup>, Ken Sakai<sup>1</sup>, Ken Onda<sup>1</sup> (1. *Kyushu University*)

Real-time observation of electron transfer in TiO<sub>2</sub> photoanode modified with molecular ruthenium complexes anchored by pyridine ligands

1P-09

**\*Makoto Tozawa**<sup>1</sup>, Chie Miyamae<sup>1</sup>, Kazutaka Akiyoshi<sup>1</sup>, Tatsuya Kameyama<sup>1</sup>, Genichi Motomura<sup>2</sup>, Yoshihide Fujisaki<sup>2</sup>, Taro Uematsu<sup>3</sup>, Susumu Kuwabata<sup>3</sup>, Tsukasa Torimoto<sup>1</sup> (1. *Nagoya University*, 2. *NHK STRL*, 3. *Osaka University*)

Enhanced Luminescence of Ag-In-Ga-S Nanocrystals Embedded in Ga<sub>2</sub>O<sub>3</sub> Matrix by Na<sup>+</sup> Doping for Light-Emitting Diodes

1P-10

**\*Rizki Marcony Marcony Surya**<sup>1</sup>, Surya Pratap Singh<sup>1</sup>, Takuya Okazaki<sup>1</sup>, Kosuke Beppu<sup>1</sup>, Fumiaki Amano<sup>1</sup> (1. *Tokyo Metropolitan University*)

Cuprous Oxide Photocathode Stability via Nitrate Reduction Reaction

1P-11

**\*Yuki Goya**<sup>1</sup>, Ken Sakai<sup>1</sup>, Hironobu Ozawa<sup>1</sup> (1. *Kyushu University*)

A Molecular-Based Photoelectrochemical Cell for Soar-Driven CO<sub>2</sub> Reduction Consisting of Two Mesoporous TiO<sub>2</sub> Electrodes

1P-12

**\*Yung-Chung Chen**<sup>1</sup>, Shih-Chieh Yen<sup>1</sup>, Jen-Shyang Ni<sup>1</sup> (1. *National Kaohsiung University of Science and Technology*)

The preparation of one-component Type II visible-light-absorbing chalcones containing fused aromatic rings and their free radical photopolymerization properties

1P-13

Naoki Sugihara<sup>1</sup>, **\*Masayuki Abe**<sup>1</sup>, Yoshihiro Nishimoto<sup>1</sup>, Makoto Yasuda<sup>1</sup> (1. *Osaka University*)  
Defluoroheteroarylation of Trifluoromethylarenes with Heteroarenes by Photoredox Catalysts and Organostannanes

1P-14

**\*Ryuichi Nakada**<sup>1</sup>, Toshiya Tanaka<sup>1</sup>, Megumi Okazaki<sup>1</sup>, Kazuhiko Maeda<sup>1</sup> (1. *Tokyo Tech.*)

Light-intensity dependence of CO<sub>2</sub> reduction over Ru-complex/Ag/polymeric carbon nitride hybrid photocatalysts

1P-15

**\*Natsumi Yano**<sup>1</sup>, Yusuke Kataoka<sup>1</sup> (1. *Shimane University*)

*Dimer-of-Dimers* type tetranuclear rhodium complex catalyst for electrochemical and photochemical hydrogen evolution

1P-16

**\*Arno Raes**<sup>1</sup>, Sammy W. Verbruggen<sup>1</sup> (1. *University of Antwerp*)

Ultrasound-driven crystallization of amorphous TiO<sub>2</sub> for photocatalysis



1P-17

**\*Hisanao Usami<sup>1</sup>**, Honoka Shima<sup>1</sup> (1.*Shinshu University*)

Preparation and photocatalytic properties of crosslinked-1,2,4,5-tetrahydroxybenzene for hydrogen peroxide generation

1P-18

**\*Hiroyuki Takeda<sup>1</sup>**, Natsumi Hirosaka<sup>1</sup>, Taiyo Kobayashi<sup>1</sup>, Motoko S. Asano<sup>1</sup> (1.*Gunma University*)

Visible-Light Absorption of Heteroleptic Cu(I) Complexes Bearing 5-Membered Heteroaryls for Redox Photosensitizer

1P-19

**\*Natsuki Suto<sup>1</sup>**, Yuichi Yamaguchi<sup>1,2</sup>, Akihiko Kudo<sup>1,2</sup> (1.*Tokyo University of Science*, 2.*CVRC, RIST TUS*)

Single particulate ANbO<sub>3</sub>:Ir,Zr (A = K, Na) photocatalysts synthesized by various methods for water splitting under visible light irradiation

1P-20

**\*Shin-ichi Sasaki<sup>1</sup>**, Yanxiang Liu<sup>2</sup>, Ritsuko Fujii<sup>3</sup>, Xiao-Feng Wang<sup>2</sup> (1.*Nagahama Inst. Bio-Sci. Tech.*, 2.*Jilin University*, 3.*Osaka Metropolitan University*)

Carotenoid@Ti<sub>3</sub>C<sub>2</sub>Tx nanocomposites for photocatalytic hydrogen evolution

1P-21

**\*DongSeb Lee<sup>1</sup>**, Kosei Yamauchi<sup>1</sup>, Ken Sakai<sup>1</sup> (1.*Kyushu University*)

Enhanced Formate Selectivity and Suppressed Hydrogen Evolution in Rhodium-Based Photocatalytic CO<sub>2</sub> Reduction via Hydroxyl-Functionalized bpy Ligands

1P-22

**\*Merlin Lukas Gutgesell<sup>1</sup>**, Julian Klein<sup>2</sup>, Shuoping Ding<sup>3</sup>, Gerd Bacher<sup>2</sup>, Jennifer Strunk<sup>1</sup> (1.*Tech. University Munich (TUM)*, 2.*University Duisburg-Essen*, 3.*Leibniz-Inst. for Cat. (LIKAT)*)

Rutilization of TiO<sub>2</sub> Anatase by Plasmonic Heating through Au Nanoparticles

1P-23

**\*Masanori Kodera<sup>1</sup>**, Kazuhiro Sayama<sup>1</sup> (1.*AIST*)

Machine learning-assisted prediction of nitridation process of Ta<sub>2</sub>O<sub>5</sub> to TaON and their photocatalytic oxygen evolution properties

1P-24

**\*Yudai Furuta<sup>1</sup>**, Hajime Suzuki<sup>1</sup>, Osamu Tomita<sup>1</sup>, Akinobu Nakada<sup>1</sup>, Akinori Saeki<sup>2</sup>, Ryu Abe<sup>1</sup> (1.*Kyoto University*, 2.*Osaka University*)

Controlling Carrier Dynamics of Bi-based Oxyhalide Photocatalysts via Introduction of Lanthanide Ions

1P-25

**\*Hikari Suzuki<sup>1</sup>**, Yusuke Kinoshita<sup>1</sup>, Ayumi Ishii<sup>1</sup> (1.*Waseda University*)

Chiroptical Control in One-dimensional Helical Structure of Perovskite Crystalline Films

1P-26

\***Yasutaka Soga**<sup>1</sup>, Hajime Suzuki<sup>1</sup>, Osamu Tomita<sup>1</sup>, Akinobu Nakada<sup>1</sup>, Ryu Abe<sup>1</sup> (1.Kyoto University).

Particle Morphology Control of a Layered Oxyhalide Photocatalyst Toward Efficient Water Splitting Under Visible Light

1P-27

\***Eri Sakuda**<sup>1</sup>, Ryo Fukumoto<sup>1</sup>, Yuuki Hommura<sup>1</sup>, Kenichiro Omoto<sup>1</sup>, Yasuhiro Arikawa<sup>1</sup>, Keisuke Umakoshi<sup>1</sup> (1.Nagasaki University)

Photoreduction Reaction of CO<sub>2</sub> Using Cyclometalated Iridium(III) Complexes Having Arylborane Units

1P-28

\***Takumi Okada**<sup>1,2</sup>, Masanori Kodera<sup>1</sup>, Yugo Miseki<sup>1</sup>, Hitoshi Kusama<sup>1</sup>, Takahiro Gunji<sup>2</sup>, Kazuhiro Sayama<sup>1,2</sup> (1.AIST, 2.Tokyo University of Science)

Simultaneous production of hydrogen and chlorine through overall brine splitting with Pt-loaded TiO<sub>2</sub>

1P-29

\***Ryota Komatsuzaki**<sup>1</sup>, Yusuke Kinoshita<sup>1</sup>, Ayumi Ishii<sup>1</sup> (1.Waseda University)

Development of Lanthanide-based Up-conversion Hybrid Materials for NIR Light-activated Photochemical Reaction

1P-30

\***Koshiro Chiwata**<sup>1</sup>, Kosei Yamauchi<sup>1</sup>, Ken Sakai<sup>1</sup> (1.Kyushu University)

Electron-accumulating Dinuclear Co-NHC Catalyst for CO<sub>2</sub> Reduction

1P-31

\***Mai Takashima**<sup>1</sup>, Bunsho Ohtani<sup>2</sup>, Ryoji Asahi<sup>1</sup> (1.Nagoya University, 2.touche NPO)

Prediction of photocatalytic activity by energy-resolved distribution of electron traps

1P-32

\***Linh Tran Bao Nguyen**<sup>1</sup>, Manabu Abe<sup>1</sup> (1.Hiroshima University)

Study on factors affecting uncaging quantum yield for the design of improved *ortho*-nitrobenzyl photoremovable protecting groups

1P-33

\***Taishu Kojima**<sup>1</sup> (1.Osaka University)

Modification of Cobalt-substituted Cytochrome P450 with a Photosensitizer toward Photoinduced Carbon Dioxide Reduction

1P-34

\***Napasuda Wichaiyo**<sup>1</sup>, Yuyao Wei<sup>1</sup>, Chao Ding<sup>2</sup>, Sayuri Kaneko<sup>1</sup>, Shuzi Hayase<sup>1</sup>, Qing Shen<sup>1</sup> (1.The University of Electro-Communications, 2.Sichuan University)

Synthesis, Optical and Electrical Properties of Colloidal P-type PbS Quantum Dots for Solar Cell Applications

1P-35

**\*Boyu Zhang<sup>1</sup>**, Shuzi Hayase<sup>1</sup>, Qing Shen<sup>1</sup> (1. *The University of Electro-Communications*)

Suppressing Auger recombination by controlling the interface of core-shell quantum dots for high efficiency quantum dot-based solar cells

1P-36

**\*Samy Almosni<sup>1</sup>**, Hiroshi Segawa<sup>1</sup> (1. *The University of Tokyo*)

Volatile solvent system for quenching-free perovskite processing

1P-37

**\*Chao Yang Lin<sup>1</sup>**, Heng Lu<sup>2</sup>, Xiaowei Zhan<sup>2</sup>, Kai Chen<sup>1,3,4</sup> (1. *RRI, Faculty of Engineering, VUW*, 2. *SMSE, Peking Univ*, 3. *MacDiarmid Institute for Advanced Materials and Nanotechnology*, 4. *The Dodd-Walls Centre for Photonic and Quantum Technologies*)

Ultrafast photophysics in ternary system of organic solar cell material

1P-38

**\*Ryo Fukasawa<sup>1</sup>**, Toru Asahi<sup>1</sup>, Takuya Taniguchi<sup>1</sup> (1. *Waseda University*)

Effectiveness and limitation of the performance prediction of perovskite solar cells by process informatics

1P-39

**\*Shafna Kunnathum Peedika<sup>1</sup>**, Wei Tzu Chien<sup>1</sup> (1. *NTHU*)

A new approach for the fabrication of perovskite solar cells by mixing of perovskite single crystals

1P-40

**\*Wentao Zhang<sup>1</sup>**, Kazutaka Akiyoshi<sup>1</sup>, Tatsuya Kameyama<sup>1</sup>, Tsukasa Torimoto<sup>1</sup> (1. *Nagoya University*)

Tailoring Photoelectrochemical Properties of Ag-Bi-S Quantum Dots through Size and Composition

1P-41

**\*Xiaoxiao Mi<sup>1</sup>**, Koichi Tamaki<sup>1</sup>, Haibin Wang<sup>1</sup>, Takaya Kubo<sup>1</sup>, Hiroshi Segawa<sup>1</sup> (1. *The University of Tokyo*)

PbS quantum dot/ZnO heterointerface modification using small organic molecules with different tailor groups for high-efficiency infrared solar cell

1P-42

**\*Phuong Ha Thi Ngo<sup>1</sup>**, Tzu-chien Wei<sup>1</sup>, Vinh Son Nguyen<sup>1</sup> (1. *National Tsing Hua University*)

Electrodeposited Zn-doped TiO<sub>2</sub> Mesoporous Electron Transporting Layer For Efficient Perovskite Solar Cells

1P-43

**\*Farghally Abdelraheem Farghally<sup>1</sup>**, Tsung Chein Zu Lee<sup>2</sup>, Chen Yu Yeh<sup>2</sup>, Tzu Chien Wei<sup>1</sup> (1. *National Tsing Hua University*, 2. *National Chung Hsing University*)

Rational Molecular Engineering of Porphyrins for Enhanced Performance in Dye-Sensitized Solar Cells

1P-44

**\*Hao Yang**<sup>1</sup>, Licheng Sun<sup>1, 2</sup> (1.KTH, 2.Westlake University)

Decoupled water nucleophilic attack pathway by a polymeric water oxidation catalyst with single nickel sites

1P-45

**\*Toma Kunikubo**<sup>1</sup>, Muralee Murugesu<sup>2</sup>, Jaclyn Brusso<sup>2</sup>, Kosei Yamauchi<sup>1</sup>, Hironobu Ozawa<sup>1</sup>, Ken Sakai<sup>1</sup> (1.Kyushu University, 2.Ottawa University)

A Highly Durable Dinuclear Platinum(II) Molecular Photocatalyst Promoting Red-Light-Driven Hydrogen Production From Water

1P-46

**\*Shu Ashimura**<sup>1</sup>, Outa Mori<sup>1</sup>, Reiya Konaka<sup>1</sup>, Masaaki Yoshida<sup>1</sup> (1.Yamaguchi University)

Observation of excited carrier transfer from TiO<sub>2</sub> photocatalyst powder to metal nanoparticle cocatalyst using in-situ ATR-SEIRAS measurement.

1P-47

**\*Masanori Kan**<sup>1</sup>, Kosei Yamauchi<sup>1</sup>, Ken Sakai<sup>1</sup> (1.Kyushu University)

Estimating Turnover Frequency in Electrochemical Hydrogen Evolution from Water Catalyzed by a Co-NHC Complex

1P-48

**\*Kyosuke Yamada**<sup>1</sup>, Yutaka Amao (1.Osaka Metropolitan University)

Visible-light driven L-alanine production from pyruvate and ammonia using photo/biocatalyst system

1P-49

**\*Shintaro Yoshikawa**<sup>1</sup>, Yutaka Amao<sup>1</sup> (1.Osaka Metropolitan University)

Visible light responsive hydrogen production based on formate decomposition using the enzyme and platinum nanoparticles in neutral pH region

1P-50

**\*Anuja Arun Yadav**<sup>1</sup>, M. M. Islam<sup>1</sup>, Takeaki Sakurai<sup>1</sup>, S.-W. Kang<sup>2</sup> (1.University of Tsukuba, 2.Yeungnam University)

Enhanced Electrochemical Performance of Nitrogen-Doped Carbon dot/MnMoO<sub>4</sub> Composites for energy storage Applications

1P-51

**\*Masahiro Tomomune**<sup>1</sup>, Masaaki Yoshida<sup>1</sup> (1.Yamaguchi University)

Development of Water Splitting catalyst Using Manganese Nodule and Elucidation of Catalytic Function by Operando XAFS Measurements

1P-52

**\*Xue Zhang**<sup>1</sup>, Jianzhang Zhao<sup>1</sup> (1.Dalian University of Technology)

A new discovery on the spatial distribution of triplet state in molecules with large π-conjugated systems

1P-53

**\*Xi Chen**<sup>1</sup>, Jianzhang Zhao<sup>1</sup> (*1.Dalian University of Technology*)

Long-Lived Charge-Transfer State in Spiro Compact Electron Donor–Acceptor Dyads Based on Pyromellitimide-Derived Rhodamine: Charge Transfer Dynamics and Electron Spin Polarization

1P-54

**\*Hajime Shigemitsu**<sup>1</sup>, Aya Yoshikawa<sup>1</sup>, Yuya Imuro<sup>1</sup>, Toshiyuki Kida<sup>1</sup> (*1.Osaka University*)

Photocatalytic Activity Induced by Self-assemblies of Ionic Organic Dyes and the Applications for Artificial Photosynthesis

1P-55

**\*Toshihiro Takashima**<sup>1</sup>, Takumi Mochida<sup>1</sup>, Hikaru Fukasawa<sup>1</sup>, Hiroshi Irie<sup>1</sup> (*1.University of Yamanashi*)

Electrochemical nitrogen fixation using defect-engineered iron oxides

1P-56

**\*Tsuyoshi Kawai**<sup>1, 2</sup>, Ryosuke Asato<sup>1, 2, 3, 6</sup>, Takuya Nakashima<sup>4</sup>, Ryuta Imai<sup>1</sup>, Mihoko Yamada<sup>1</sup>, Colin Martin<sup>1, 2, 5</sup>, Gwenael Rapenne<sup>1, 2, 6</sup> (*1.NAIST, 2.NAIST-CEME, 3.Mitsubishi Chemical Corporation, 4.Osaka Metropolitan University, 5.Tokyo Tech., 6.Universit  de Toulouse, CNRS*)

Efficient Isomerization Reactions of Photochromic Terarylenes and Photoenergy Storage Capability

1P-57

**\*Tatsuki Morimoto**<sup>1</sup>, Sakiho Kihara<sup>1</sup>, Hiroki Shimoji<sup>1</sup> (*1.Tokyo University of Technology*)

Anion-Accelerated Photocatalytic Reduction of Carbon Dioxide using a boron complex

----- July 30, 2024 (Monday) 18:10-20:10 Room A -----

- from 18:10 to 19:10 (for presenters given an odd number)
- from 19:10 to 20:10 (for presenters given an even number)

2P-01

\***Shinya Moribe**<sup>1</sup>, Yasuhiko Takeda<sup>1</sup>, Mitsutaro Umehara<sup>1</sup>, Jiaju Ma<sup>1</sup>, Yuri Yamada<sup>1</sup>, Minoru Hirano<sup>1</sup> (1. *TOYOTA CENTRAL R&D LABS., INC.*)

Transient photocurrent response of porphyrin-zirconium metal-organic framework electrodes in photoelectrochemical reactions

2P-02

\***Alexandru George Dumitrascu**<sup>1</sup>, Laureline Lecarme<sup>1</sup>, Jean-Claude Lepretre<sup>1</sup> (1. *Grenoble INP*)

Photo-assisted recharge of Lithium Ion Battery

2P-03

\***Jigar Shaileshkumar Halpati**<sup>1</sup>, Aravind Kumar Chandiran<sup>1</sup> (1. *Indian Institute of Technology Madras*)

Mixed tetravalent vacancy ordered halide double perovskites for enhanced solar water oxidation.

2P-04

\***Wei-Yin Sun**<sup>1</sup> (1. *Nanjing University*)

Copper frameworks with tetraphenylethene-imidazole ligand for photo/electrocatalytic carbon dioxide reduction

2P-05

\***Kazutaka Akiyoshi**<sup>1</sup>, Mariko Hasegawa<sup>1</sup>, Chie Miyamae<sup>1</sup>, Tatsuya Kameyama<sup>1</sup>, Hiroki Sato<sup>2</sup>, Yusuke Ohshima<sup>2</sup>, Tsukasa Torimoto<sup>1</sup> (1. *Nagoya University*, 2. *TANAKA KIKINZOKU KOGYO K.K.*)

Facile Solution-Phase Synthesis of Ag-Au-S Quantum Dots with Near-Infrared Photoluminescence

2P-06

\***Ryusuke Mizoguchi**<sup>1</sup>, Behera Truptimayee<sup>2</sup>, Ayumi Ishii<sup>2</sup> (1. *Teikyo University of Science*, 2. *Waseda University*)

Lanthanide-based Up-conversion Hybrid Materials with Multicolor Luminescence

2P-07

\***Mir Ferdous Chowdhury**<sup>1</sup>, Fumiaki Amano<sup>1</sup> (1. *Tokyo Metropolitan University*)

Electrochemical self-doping in TiO<sub>2</sub> nanotubes for enhanced photoelectrochemical degradation of organic dye

2P-08

\***Mizuki Noto**<sup>1</sup>, Ayumi Ishii<sup>2</sup> (1. *Teikyo University of Science*, 2. *Waseda University*)

Quantum-cutting induced near-infrared luminescence in Yb<sup>3+</sup>-doped lead halide perovskite single crystals

2P-09

\***Minori Ishihara**<sup>1</sup>, Tomoya Oshikiri<sup>1, 2</sup>, Xu Shi<sup>1</sup>, Hiroaki Misawa<sup>1, 3, 4</sup> (1.Hokkaido University, 2.Tohoku University, 3.Okayama University, 4.National Yang Ming Chiao Tung University)

Hot-electron transfer on photoanode with multilayer gold nanoparticles under strong coupling between plasmon and Fabry-Pérot nanocavity

2P-10

\***Ren Itagaki**<sup>1, 2</sup>, Akinobu Nakada<sup>1, 3</sup>, Hajime Suzuki<sup>1</sup>, Osamu Tomita<sup>1</sup>, Ryu Abe<sup>1</sup> (1.Kyoto University, 2.JSPS Research Fellow DC1, 3.PRESTO/JST)

Photoredox Catalysis Harnessing Water as an Electron Source with Phase-Migrating Electron Mediators in a Biphasic Solution

2P-11

\***Hirotō Ueki**<sup>1</sup>, Shuji Anabuki<sup>2</sup>, Megumi Okazaki<sup>1</sup>, Kenta Aihara<sup>1</sup>, Fumitaka Ishiwari<sup>3</sup>, Akinori Saeki<sup>3</sup>, Akira Yamakata<sup>2</sup>, Kazuhiko Maeda<sup>1</sup> (1.Tokyo Tech., 2.Okayama University, 3.Osaka University)

Improved activity of a particulate Pb-Ti oxyfluoride photocatalyst by particle size reduction

2P-12

\***Kei Kamogawa**<sup>1</sup>, Yuki Kato<sup>2</sup>, Yuushi Shimoda<sup>3</sup>, Kiyoshi Miyata<sup>3</sup>, Ken Onda<sup>3</sup>, Takumi Noguchi<sup>2</sup>, Yusuke Tamaki<sup>4</sup>, Osamu Ishitani<sup>5</sup> (1.Tokyo Tech., 2.Nagoya University, 3.Kyushu University, 4.AIST, 5.Hiroshima University)

Improvement of Ru(II)-Re(I) Supramolecular Photocatalysts Based on Mechanistic Study

2P-13

\***Riku Nakao**<sup>1</sup>, Kotaro Wada<sup>1</sup>, Kengo Nagatsuka<sup>1</sup>, Yuichi Yamaguchi<sup>1,2</sup>, Akihiko Kudo<sup>1,2</sup> (1.Tokyo University of Science, 2.CVRC, RIST TUS)

Development of Z-schematic Photocatalyst Systems for Water Splitting using Long Wavelength Visible Light-Responsive Metal Sulfides Prepared by a Flux Method

2P-14

\***Tomoomi Miyashita**<sup>1</sup>, Shunya Yoshino<sup>1</sup>, Makoto Kobayashi<sup>2</sup>, Hideki Kato (1.Tohoku University 2.Nagoya University)

Modification of Fe<sub>2</sub>O<sub>3</sub> photocatalyst for application to Z-scheme water splitting

2P-15

\***Shunsuke Kobashi**<sup>1</sup>, Yoshinori Okayasu<sup>1</sup>, Yuki Nagai<sup>1</sup>, Yoichi Kobayashi<sup>1, 2</sup> (1.Ritsumeikan University, 2.PRESTO JST)

Optical Properties and Photostability of Water-Soluble Europium(III) Complex Nanoparticles

2P-16

\***Waka Matsuo**<sup>1</sup>, Daisuke Yoshioka<sup>1</sup>, Yoshinori Okayasu<sup>1</sup>, Yuki Nagai<sup>1</sup>, Yoichi Kobayashi<sup>1, 2</sup> (1.Ritsumeikan University, 2.PRESTO JST)

Photoinduced Ligand Displacement in Zinc Sulfide Nanorods

2P-17

**\*Sota Tokuoka**<sup>1</sup>, Daisuke Yoshioka<sup>1</sup>, Yuki Nagai<sup>1</sup>, Yoshinori Okayasu<sup>1</sup>, Yoichi Kobayashi<sup>1, 2</sup>  
(1.*Ritsumeikan University*, 2.*PRESTO, JST*)

Photoinduced emission color change and ligands dependence of Cadmium Sulfide nanoplatelets under UV irradiation

2P-18

**\*Tomoya Ota**<sup>1</sup>, Shigeru Ikeda<sup>1</sup> (1.*Konan University*)

Calcium titanate co-doped with rhodium, antimony, and magnesium as a visible light responsive photocatalyst for hydrogen evolution

2P-19

**\*Yuan Zhong**<sup>1</sup>, Akira Yamamoto<sup>1</sup>, Hisao Yoshida<sup>1</sup> (1.*Kyoto University*)

Nonoxidative coupling of methane on Pd-Bi/KTO photocatalyst

2P-20

**\*Naoki Hosokawa**<sup>1, 3</sup>, Yusuke Tamaki<sup>2</sup>, Osamu Ishitani<sup>3</sup> (1.*Tokyo Tech.*, 2.*AIST*, 3.*Hiroshima University*)

Factors determining formation quantum yields of photochemical reduced species

2P-21

**\*Mayu Yuasa**<sup>1</sup>, Yohei Kametani<sup>1</sup>, Yoshihito Shiota<sup>1</sup>, Yu Hoshino<sup>1</sup>, Hisashi Shimakoshi<sup>1</sup> (1.*Kyushu University*)

Visible Light-driven Photocatalytic Synthesis of *N*-Formamides Only from Amines and Air

2P-22

**\*Thomas Douglas Small**<sup>1</sup>, Cameron Shearer<sup>1</sup>, Gregory Metha<sup>1</sup>, Yideng Shen<sup>1</sup> (1.*The University of Adelaide*)

Fabricating visible light active photocatalysts for enhanced hydrogen production

2P-23

**\*Yideng Shen**<sup>1</sup>, Thomas D. Small<sup>1</sup>, Cameron J. Shearer<sup>1</sup>, Gregory F. Metha<sup>1</sup> (1.*University of Adelaide*)

Improving BiVO<sub>4</sub> as OEP for Z-scheme photocatalyst

2P-24

**\*Hideya Tsuchikado**<sup>1</sup>, Yuta Shiroma<sup>1</sup>, Dongxiao Fan<sup>2</sup>, Megumi Okazaki<sup>1</sup>, Fumitaka Ishiwari<sup>3</sup>, Shunsuke Nozawa<sup>2</sup>, Akira Yamakata<sup>4</sup>, Akinori Saeki<sup>3</sup>, Kazuhiko Maeda<sup>1</sup> (1.*Tokyo Tech.*, 2.*High Energy Accelerator Research Organization*, 3.*Osaka University*, 4.*Okayama University*)

Development of Cation-Doped Layered Perovskite Oxynitride K<sub>2</sub>LaTa<sub>2</sub>O<sub>6</sub>N Photocatalyst for Efficient Hydrogen Evolution



2P-25

\***Hiroki Iwaizumi**<sup>1</sup>, Yasutaka Kitahama<sup>1</sup>, Vikas Nandal<sup>2</sup>, Kazuhiko Seki<sup>2</sup>, Toshio Hayashi<sup>3, 4</sup>, Akihiko Kudo<sup>5, 6</sup>, Hiroyuki Matsuzaki<sup>1</sup>, Kazunari Domen<sup>7, 8</sup> (1. *Research Institute for Material and Chemical Measurement, AIST*, 2. *Global Zero Emission Research Center, AIST*, 3. *ARPChem*, 4. *Mitsui Chemicals, Incorporated*, 5. *Tokyo University of Science*, 6. *Research Institute of Science & Technology*, 7. *Shinshu University*, 8. *The University of Tokyo*)

Unveiling photogenerated carrier dynamics in visible-light absorbing SnNb<sub>2</sub>O<sub>6</sub> by transient absorption spectroscopy

2P-26

\***Takuya Yokoo**<sup>1</sup>, Eri Sakuda<sup>1</sup>, Kenichiro Omoto<sup>1</sup>, Yasuhiro Arikawa<sup>1</sup>, Keisuke Umakoshi<sup>1</sup> (1. *Nagasaki University*)

Synthesis and Photophysical Properties of Ruthenium (II) Complexes with Planar Boron Ligand

2P-27

\***Yuki Tomita**<sup>1</sup>, Natsuki Taira<sup>1</sup>, Ken Sakai<sup>1</sup>, Hironobu Ozawa<sup>1</sup> (1. *Kyushu University*)

Highly Efficient Visible-Light-Driven Water Oxidation by a Carbon Nitride Modified with Cobalt Polyoxometalate Molecular Catalyst

2P-28

\***Daehan Lee**<sup>1</sup>, Min-Jong Bong<sup>1</sup>, Seong Woon Jeong<sup>1</sup>, Hyeongu Kang<sup>1</sup>, Ho-Jin Son<sup>1</sup> (1. *Korea University*)

Photocatalytic Conversion of CO<sub>2</sub> to Formate/CO by ( $\eta^6$ -*para*-Cymene)Ru(II) Half-Metallocene Catalyst: Influence of Additives and TiO<sub>2</sub> Immobilization on Catalytic Mechanism and Product Selectivity

2P-29

\***Min-Jong Bong**<sup>1</sup>, Daehan Lee<sup>1</sup>, Sang Heon Jeong<sup>1</sup>, Seung-Hwan Cha<sup>1</sup>, Myung Jae Lee<sup>1</sup>, Ho-Jin Son<sup>1</sup> (1. *Korea University*)

Secondary Sphere Impact on Organometallic Catalysts in Photochemical CO<sub>2</sub> Reduction: Tailoring Product Selectivity through Alcohol and Alkyloxy Tethering Ligands

2P-30

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Utilization of Linear Perfluoroalkyl Aromatics Under Visible-Light

2P-31

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Thiophene Units for Near-infrared Two-photon Uncaging of Calcium ions

2P-32

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Development of two-photon responsive photocatalysts and their applications

2P-33

\***Ryuei Hayashi**<sup>1</sup>, Ryoko Oyama<sup>1</sup>, Manabu Abe<sup>1</sup> (1. *Hiroshima University*)

Mechanistic study on photo-induced deprotection of indole-type photolabile protecting groups

2P-34

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Photochemical generation of 2-aryindenyl cations with triplet ground-states

2P-35

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Controlling Tin Halide Perovskite Oxidation Dynamics in Solution for Perovskite Optoelectronic Devices

2P-36

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Effect of In-plane Cell Structure on Photoelectric Conversion Characteristics of Perovskite Solar Cells

2P-37

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Origin of capacitance of organic lead halide perovskite solar cells

2P-38

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The Role of Mixing Methylammonium and Formamidinium Cations on the Durability of Perovskite Solar Cells

2P-39

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Bi-directional Passivation for Highly Efficient and Stable CuSCN-based Perovskite Solar Cell using (3-Mercaptopropyl)trimethoxysilane

2P-40

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Photovoltaic Performance and Long-term Stability of Lead Sulfide Quantum Dot Solar Cells Using Dicarboxylic Acid Ligands in the Hole Transport Layer

2P-41

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First-Principles Calculations on Optical Properties and Defect Structures of Ge-Doped Sn Perovskites

2P-42

**\*Tho Ngoc Anh Vo<sup>1</sup>** (*1.National Tsing Hua University*)

Advancements in perovskite photovoltaics and the superiority of perovskite solar cells for indoor energy harvesting

2P-43

**\*Khai Le Viet Vo<sup>1</sup>**, Phuong Thi Ha Phuong<sup>1</sup>, Tho Ngoc Anh Vo<sup>1</sup>, Chien Tzu Wei<sup>1</sup> (*1.National Tsing Hua University*)

An Insight on The Potential of Perovskite/Silicon 4-Terminal Tandem Solar Cell Integration System

2P-44

**\*Min An Wei<sup>1</sup>**, Shafna Kunnathum Peedika<sup>1</sup>, Tzu Chein Wei<sup>1</sup> (*1.National Tsing Hua University*)

An eco-friendly way to recycle lead-iodide from perovskite solar cells

2P-45

**\*Itsuki Hanamitsu<sup>1</sup>** (*1.Kwansei Gakuin University*)

Spectroscopic study of the artificial LH1 complex created by reconstitution method: Detailed elucidation of excitation energy transfer processes

2P-46

**\*Hiroshi Isobe<sup>1</sup>**, Takayoshi Suzuki<sup>1</sup>, Michihiro Suga<sup>1</sup>, Jian-Ren Shen<sup>1</sup>, Kizashi Yamaguchi<sup>2</sup> (*1.Okayama University, 2.Osaka University*)

Exploring the Interplay between Collective Motion in the Primary Coordination Sphere and Catalytic Function in the Oxygen-Evolving Complex of Photosystem II

2P-47

**\*Yoshiki Nakajima<sup>1</sup>**, Hajime Fujii<sup>1</sup>, Chunxi Zhang<sup>2,2</sup>, Jian-Ren Shen<sup>1</sup> (*1.Okayama University, 2.Institute of Chemistry, Chinese Academy of Sciences, Beijing*)

X-ray crystallography of photosystem II complex in which calcium of the manganese cluster is replaced by yttrium

2P-48

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Mechanistic Study on Photosynthetic Reactions of Organic Semiconductors

2P-49

**\*Maika Inoue<sup>1</sup>**, Yu Nabetani<sup>1</sup>, Tsutomu Shiragami<sup>1</sup> (*1.University of Miyazaki*)

Photooxidation of water to hydrogen peroxide catalyzed by germanium *N*-confused porphyrin / TiO<sub>2</sub> electrode

#### 2P-50

**\*Takashi Kawakami**<sup>1,2</sup>, Mizuki Otsuka<sup>2</sup>, Koichi Miyagawa<sup>2,3</sup>, Yuta Suzuki<sup>2</sup>, Shusuke Yamanaka<sup>2</sup>, Mitsutaka Okumura<sup>2</sup>, Takahito Nakajima<sup>1</sup>, Kizashi Yamaguchi<sup>1,2</sup> (1.*RIKEN R-CCS*, 2.*Osaka University*, 3.*University of Tsukuba*)

Theoretical calculations of Cubane-type Mn trinuclear complex (YMn<sub>3</sub>O<sub>3</sub>, DyMn<sub>3</sub>O<sub>3</sub>) as PSII OEC (CaMn<sub>4</sub>O<sub>5</sub>) related molecules

#### 2P-51

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Relative stability and electronic structures in the S<sub>1</sub> state of the CaMn<sub>4</sub>O<sub>5</sub> cluster of the OEC of the PSII by DFT and CC calculations

#### 2P-52

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Reaction mechanism of an efficient water oxidation catalyzed by a ruthenium complex with a phenolic group

#### 2P-53

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A Molecular-Based Photoelectrochemical Cell for Highly Efficient Solar Water Splitting

#### 2P-54

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Post DFT Computations of Strongly Correlated Electron Systems: 3d Transition-Metal Oxide Clusters for Water Oxidation

#### 2P-55

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Vapor-Induced Structural Transformation Dynamics of Photoluminescent Coordination Network Crystals

#### 2P-56

**\*Tatsuya Okayama**<sup>1</sup>, Minoru Mizuhata<sup>1</sup>, Hiro Minamimoto<sup>1</sup> (1.*Kobe University*)

Investigations of Interlayer Structure Effects on Oxygen Evolution Activity in Layered Double Hydroxides Prepared by Liquid Phase Deposition Method

#### 2P-57

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Effect of Ti<sub>3</sub><sup>+</sup>/Ti<sub>4</sub><sup>+</sup> active sites in direct gas-solid-phase CO<sub>2</sub> photoreduction