Scientific Program

19 November, Tuesday

10:50 – 20:00 ISF-3 Young

20 November, Wednesday

9:00 – 12:10 ISF-3 Young

15:00 – 16:30 Registration

16:30 – 16:50 Opening Address

16:50 – 17:30 Plenary Lecture 1 Chair: Osamu Ishitani

Vincent Artero (University of Grenoble Alpes, CNRS and CEA, France)

"From Multi-Electron Multi Proton Catalysts to Photoelectrochemical Cells"

17:30 – 18:10 Plenary Lecture 2 Chair: Wolfgang Lubitz

Jian-Ren Shen (Okayama University, Japan)

"Mechanisms of Light-Induced Water-Oxidation and Energy Harvesting, Transfer in Natural Photosynthesis"

18:10 – 18:30 Break

18:30 – 20:00 Welcome Reception

21 November, Thursday

8:00 – 9:00 Registration

9:00 – 9:40 Plenary Lecture 3 Chair: Harry A. Atwater

Kazunari Domen (Shinshu University / The University of Tokyo, Japan)

"Photocatalytic Water Splitting for a Large Scale Solar Hydrogen Production"

9:40 – 10:20 Plenary Lecture 4 Chair: Richard J. Cogdell

Tatsuya Kodama (Niigata University, Japan)

"Solar Thermochemical Water/CO_2 Splitting Cycles"

10:20 – 11:00 Plenary Lecture 5 Chair: Yoshiki Higuchi

Wolfgang Lubitz (Max Planck Institute for Chemical Energy Conversion, Germany)

"Mechanisms of Hydrogen Oxidation and Production in Nature Studied by Advanced Physical Techniques"

11:00 – 12:30 Lunch Break

11:05 Group Photo

Parallel Session 1

Water Splitting 1 Chair: Frank Osterloh & Kazuhiro Takanabe

12:30 – 13:00 Keynote Lecture 1-1-1

Ryu Abe (Kyoto University, Japan)

"New Mixed Anion Photocatalysts for Visible Light Induced Water Splitting"

13:00 – 13:20 Invited Lecture 1-1-1

Li-Zhu Wu (Chinese Academy of Sciences, P.R. China)

"Artificial Photosynthetic Systems for Chemical Transformation"

13:20 – 13:40 Invited Lecture 1-1-2

Reiner Sebastian Sprick (University of Liverpool, UK)

"Conjugated Polymers for Photocatalytic Hydrogen Evolution from Water – Porous or Non-Porous? "

13:40 – 13:55 Oral Contribution 1-1-1

Mariia Pavliuk (Uppsala University, Sweden)

"Semiconducting Polymers for Photocatalytic Hydrogen Production"

13:55 – 14:10 Oral Contribution 1-1-2

Yutaka Takaguchi (Okayama University, Japan)

"Dye-Sensitized H_2 Evolution from Water Using D-A-D Dye Encapsulated Single-Walled Carbon Nanotubes"

14:10 – 14:25 Oral Contribution 1-1-3

Marijn A. Zwijnenburg (University College London, UK)

"Understanding the Activity of Polymer Hydrogen Evolution Photocatalysts"

14:25 – 15:00 Coffee Break

Experimental Studies on PSII Water Oxidation Chair: Stenbjörn Styring

12:30 – 13:00 Keynote Lecture 1-2-1

Michihiro Suga (Okayama University, PRESTO-JST, Japan)

"Intermediate S_i-State Structures of Photosystem II Reveal the Molecular Mechanism for Water Oxidation in Nature"

13:00 – 13:30 Keynote Lecture 1-2-2

Holger Dau (Freie Universität Berlin, Germany)

"Understanding (Photo)electrochemical Water Oxidation by Transferring Concepts Developed for Photosynthetic Water Oxidation"

13:30 – 13:50 Invited Lecture 1-2-1

Takumi Noguchi (Nagoya University, Japan)

"Infrared Studies on the Water Oxidation and Electron Transfer Reactions in Photosystem II"

13:50 – 14:05 Oral Contribution 1-2-1

Nobuo Kamiya (Osaka City University, Japan)

"Valence Flexibility of Manganese Atoms in the Oxygen-Evolving Complex of Photosystem II"

14:05 – 14:20 Oral Contribution 1-2-2

Miwa Sugiura (Ehime University, Japan)

"The Role of Valine 185 of the D1 Protein in the Photosystem II Oxygen Evolution"

14:20 – 14:35 Oral Contribution 1-2-3

Robin Purchase (Australian National University, Australia)

"New Spectroscopic Perspectives on Photosystem II Reaction Centers"

14:35 – 15:00 Coffee Break

Biofuels 1 Chair: Peter Lindblad & Yutaka Amao

12:30 – 13:00 Keynote Lecture 1-3-1

Yoshiki Higuchi (University of Hyogo, CRESTO-JST, Japan)

"Structural Studies on [NiFe]-Hydrogenases"

13:00 – 13:20 Invited Lecture 1-3-1

Tomohisa Hasunuma (Kobe University, Japan)

"Metabolomics Based Engineering of Microalgae and Cyanobacteria for CO_2 Capture and Utilization"

13:20 – 13:40 Invited Lecture 1-3-2

Shota Atsumi (University of California, Davis, USA)

"Biological Synthesis of Chemicals from CO_2"

13:40 – 13:55 Oral Contribution 1-3-1

Rui Miao (CEA Cadarache, France)

"Alkane Production in *Synechocystis* PCC 6803: Physiological Significance and Biotechnological Improvement Using a Microalgal Photoenzyme"

13:55 – 14:10 Oral Contribution 1-3-2

Henna Mustila (Uppsala University, Sweden)

"Towards Photobiological Isobutene Production in the Cyanobacterium *Synechocystis* PCC 6803"

14:10 – 14:25 Oral Contribution 1-3-3

Jörg Toepel (UFZ Leipzig, Germany)

"Biocatalytic Reactions Efficiently Utilize Photosynthetic Electrons Without Changing Overall Carbon Fixation Rates"

14:25 – 15:00 Coffee Break

Parallel Session 2

Water Splitting 2 Chair: Li-Zhu Wu & Reiner Sebastian Sprick

15:00 – 15:30 Keynote Lecture 2-1-1

Frank Osterloh (University of California Davis, USA)

"Depletion Layer and Surface States Control Photocatalytic Hydrogen (Oxygen) Evolution with p-Type Gallium Phosphide (n-Type $CuWO_4$) Particles"

15:30 – 15:50 Invited Lecture 2-1-1

Kazuhiro Takanabe (The University of Tokyo, Japan)

"Role of Electrocatalyst Nanoparticles for Photocatalytic Overall Water Splitting: Particle Size and Core Shell Structure"

15:50 – 16:10 Invited Lecture 2-1-2

Sophia Haussener (École Polytechnique Fédérale de Lausanne, Switzerland)

"Modeling and Optimization of Multi-Component and Mesostructured Photoelectrodes"

16:10 – 16:25 Oral Contribution 2-1-1

Mai Takashima (Hokkaido University, Japan)

"Mechanistic Study on Titania-Photocatalyzed Water Oxidation through Light Intensity-Dependence Analysis"

16:25 – 16:40 Oral Contribution 2-1-2

Tomoko Yoshida (Osaka City University, Japan)

"Nitrogen Doping into Metal Oxides For Generation of Visible Light Response Photocatalysis"

16:40 – 16:55 Oral Contribution 2-1-3

Yugo Miseki (National Institute of Advanced Industrial Science and Technology, Japan)

"Development of Highly Active $BiVO_4$ Powder for a Photocatalysis-Electrolysis Hybrid System"

16:55 – 17:30 Coffee Break

Light-Harvesting 1 Chair: Hitoshi Tamiaki

15:00 – 15:30 Keynote Lecture 2-2-1

Richard J. Cogdell (University of Glasgow, UK)

"An Up to Date Comparison of the Structure of Purple Photosynthetic Bacterial Light Harvesting Complexes"

15:30 – 15:50 Invited Lecture 2-2-1

Yoshitaka Saga (Kindai University, Japan)

"*In situ* Conversion of Cyclic Tetrapyrrole Pigments in LH2 Proteins from Purple Photosynthetic Bacteria"

15:50 – 16:10 Invited Lecture 2-2-2

Takehisa Dewa (Nagoya Institute of Technology, Japan)

"Extension of Light-Harvesting and Photocurrent Generation Abilities of Light-Harvesting and Reaction Center Complexes from Purple Photosynthetic Bacteria"

16:10 – 16:25 Oral Contribution 2-2-1

Fabio Cucinotta (Newcastle University, UK)

"Light-Harvesting Antennae Based on Self-Organised Materials"

16:25 – 16:40 Oral Contribution 2-2-2

Ken-ichi Yamanaka (Toyota Central R&D Labs., Inc., Japan)

"Energy Migration Dynamics on the Framework of Methylacridone-Bridged Periodic Mesoporous Organosilica"

16:40 -16:55 Oral Contribution 2-2-3

Fausto Puntoriero (University of Messina, Italy)

"Selectively Addressable Photoinduced Processes in Linearly Arranged Dyads"

16:55 – 17:30 Coffee Break

Bioenzymes 1 Chair: Nicolas Plümere & Tomohisa Hasunuma

15:00 – 15:30 Keynote Lecture 2-3-1

Yutaka Amao (Osaka City University, Japan)

"Visible-Light Driven Carbon Dioxide Reduction to Methanol with Bio/Photocatalyst Hybrid System – Studies on the Interaction between Electron Mediator and Biocatalyst Based on Enzyme Kinetic Analysis –"

15:30 – 15:50 Invited Lecture 2-3-1

Jinagyun Wang (Chinese Academy of Sciences, P.R. China)

"Towards Artificial Photosynthetic Bacteria Cell"

15:50 – 16:10 Invited Lecture 2-3-2

Peter Lindblad (Uppsala University, Sweden)

"Engineering Cyanobacteria for the Production of Solar Chemicals and Fuels"

16:10 – 16:25 Oral Contribution 2-3-1

Vasilis Nikolaou (University of Crete, Greece)

"Self-Assembly and Hydrogel Formation of Dipeptide-Chromophore Hybrids"

16:25 – 16:40 Oral Contribution 2-3-2

Jiro Harada (Kurume University School of Medicine, Japan)

"Gelation of 8-Hyper-Alkylated Chlorophyllous Pigment Homologs Extracted from the Constructed Mutants of the Green Sulfur Bacterium *Chlorobaculum limnaeum*"

16:40 – 17:30 Coffee Break

17:30 – 19:30 **Poster Session 1**

22 November, Friday

8:00 – 9:00 Registration

9:00 – 9:40 Plenary Lecture 6 Chair: Haruo Inoue

Can Li (Dalian Institute of Chemical Physics, P.R. China)

"Artificial Photosynthesis for Solar Fuel Production: Fundamental and Practice"

9:40 – 10:20 Plenary Lecture 7 Chair: Leif Hammarström

Erwin Reisner (University of Cambridge, UK)

"Solar-Driven Reforming of Waste Biomass and Plastics for the Synthesis of Sustainable Fuels and Chemicals"

10:20 – 11:00 Plenary Lecture 8 Chair: Hitoshi Tamiaki

Andrea Fantuzzi (Imperial College London, UK)

"Photochemistry Beyond the Red Limit in Chlorophyll *f*–Containing Photosystems"

11:00 – 12:30 Lunch Break

11:00 – 11:30 Luncheon Seminar

Prateek Dongare (Springer Nature, UK)

"Publishing in Nature Research Journals"

Parallel Session 3

Water Splitting 3 Chair: Sophia Haussener & Sascha Ott

12:30 – 13:00 Keynote Lecture 3-1-1

Licheng Sun (KTH Royal Institute of Technology, Sweden)

"A New Proposal for O-O Bond Formation in Water Splitting Catalysis – From Natural to Artificial Photosynthesis"

13:00 – 13:20 Invited Lecture 3-1-1

Haruo Inoue (Tokyo Metropolitan University, Japan)

"Water Splitting through Two-Electron Conversion to form Hydrogen Peroxide and Hydrogen by One-Photon of Visible Light"

13:20 – 13:40 Invited Lecture 3-1-2

Kevin Sivula (École Polytechnique Fédérale de Lausanne, Switzerland)

"Semiconductor Materials for Robust, Inexpensive and High Performance Photoelectrochemical Solar Water Splitting"

13:40 – 13:55 Oral Contribution 3-1-1

Sergii Shylin (Uppsala University, Sweden)

"Efficient Visible Light-Driven Water Oxidation Catalyzed by Clathrochelate Complexes"

13:55 – 14:10 Oral Contribution 3-1-2

Atsushi Kobayashi (Hokkaido University, Japan)

"Dye-Multilayering for Effective Light Harvesting and Charge Separation"

14:10 – 14:25 Oral Contribution 3-1-3

Georgios Charalambidis (University of Crete, Greece)

"Efficient Light-Driven Hydrogen Evolution using a Thiosemicarbazone-Nickel(II) Complex"

14:25 – 15:00 Coffee Break

Light-Harvesting 2 Chair: Richard J. Cogdell

12:30 – 13:00 Keynote Lecture 3-2-1

Franz-Josef Schmitt (Technical University Berlin, Germany)

"Light Harvesting Supported by Entropy"

13:00 – 13:20 Invited Lecture 3-2-1

Tatsuya Tomo (Tokyo University of Science, Japan)

"Chlorophyll *d* and *f*; Function–Localization Relationship"

13:20 – 13:40 Invited Lecture 3-2-2

Seiu Otomo (Ibaraki University, Japan)

"Metal Ion-Induced Structural and Functional Changes in Bacterial Light-Harvesting Complexes"

13:40 – 13:55 Oral Contribution 3-2-1

Yoshifumi Ueno (Kobe University, Japan)

"Spectroscopic Properties of Novel Red-Shifted Fucoxanthin Chlorophyll *a/c*-Binding Protein Complexes"

13:55 – 14:10 Oral Contribution 3-2-2

Yutaka Shibata (Tohoku University, Japan)

"Single Molecule Spectroscopy on Photosystem I Revealed the Dynamical Nature of the Light Harvesting"

14:10 – 15:00 Coffee Break

Bioenzymes 2 Chair: Jinagyun Wang & Jiro Harada

12:30 – 13:00 Keynote Lecture 3-3-1

Nicolas Plümere (Ruhr-Universität Bochum, Germany)

"Bottlenecks in Semi-Artificial Photosynthesis"

13:00 – 13:20 Invited Lecture 3-3-1

Bojana Ginovska (Pacific Northwest National Laboratory, USA)

"Controlling Catalytic Activity by Redesigning Enzymatic Scaffolds"

13:20 – 13:40 Invited Lecture 3-3-2

Chihiro Azai (Ritsumeikan University, Japan)

"Photosynthetic Hydrogen Production in Green Sulfur Bacteria"

13:40 – 13:55 Oral Contribution 3-3-1

Starla D. Glover (Uppsala University, Sweden)

"Reengineering of the Well-Defined a_3X *de novo* Protein for Photocatalytic Hydrogen Production"

13:55 – 14:10 Oral Contribution 3-3-2

Haining Tian (Uppsala University, Sweden)

"Unraveling Effect of Electron Donors and Redox Mediator on Interaction of Carbon Dots with [FeFe]hydrogenase for Light-Driven Hydrogen Evolution"

14:10 – 15:00 Coffee Break

Parallel Session 4

Water Splitting 4 Chair: Licheng Sun & Kevin Sivula

15:00 – 15:30 Keynote Lecture 4-1-1

Jae Sung Lee (Ulsan National Institute of Science & Technology, South Korea)

"Toward Practical Solar Hydrogen Production by Photoelectrochemical Water Splitting"

15:30 – 15:50 Invited Lecture 4-1-1

Kazuhiro Sayama (National Institute of Advanced Industrial Science and Technology, Japan)

"Production of Valuable Chemicals Using Oxide Semiconductor Photoanodes and Photocatalysts"

15:50 – 16:10 Invited Lecture 4-1-2

Sascha Ott (Uppsala University, Sweden)

"(Photo)electrochemical Fuel Generation by Molecular Catalysts in Metal-Organic Frameworks"

16:10 – 16:25 Oral Contribution 4-1-1

Tarek A. Kandiel (King Fahd University of Petroleum & Minerals, Saudi Arabia)

"Hematite Photoanode: Synthesis, Surface Modification, and Charge Carrier Kinetics"

16:25 – 16:40 Oral Contribution 4-1-2

Hironobu Ozawa (Kyushu University, Japan)

"A Molecular-Based Electrochemical Cell for Overall Water Splitting Consisting of Two TiO_2 Electrodes"

16:40 – 16:55 Oral Contribution 4-1-3

Ludovic Troian-Gautier (Université libre de Bruxelles, Belgium)

"Layer-by-Layer Assembly of Molecular Photoelectrodes on Conductive Metal Oxide for Water Splitting"

16:55 – 17:30 Coffee Break

Advanced Spectroscopy and Theory 1 Chair: Akihito Ishizaki

15:00 – 15:30 Keynote Lecture 4-2-1

Michael R. Wasielewski (Northwestern University, USA)

"Radical Ion Excited States as Super-Redox Agents for Artificial Photosynthesis"

15:30 – 16:00 Keynote Lecture 4-2-2

Leif Hammarström (Uppsala University, Sweden)

"Controlling the Proton-Coupled Electron Transfer Reactions of Solar Fuels Catalysts"

16:00 – 16:20 Invited Lecture 4-2-1

Hongxian Han (Chinese Academy of Sciences, P.R. China)

"Towards Artificial Photosynthesis of Solar Fuels"

16:20 – 16:35 Oral Contribution 4-2-1

Ken Onda (Kyushu University, Japan)

"Unveiling Mechanism of CO_2 Photoreduction Using Time-resolved Infrared Spectroscopy"

16:35 – 16:50 Oral Contribution 4-2-2

Koichi Yamashita (Kyoto University, Japan)

"Electronic Structures of Doped $BaTaO_2N$: A DFT Study"

16:50 – 17:05 Oral Contribution 4-2-3

Naoya Murakami (Kyushu Institute of Technology, Japan)

"Photoacoustic Measurement of Intrinsic Quantum Efficiency for Photoanodic Reaction at n-Type Semiconductor Film Deposited on Transparent Conductive Substrate"

17:05 – 17:30 Coffee Break

CO_2 Reduction 1 Chair: Takeshi Morikawa & Sven Rau

15:00 – 15:30 Keynote Lecture 4-3-1

Etsuko Fujita (Brookhaven National Laboratory, USA)

"Uncovering the Roles of Triethanolamine in Photochemical CO_2 Reduction to Formate"

15:30 – 15:50 Invited Lecture 4-3-1

Ho-Jin Son (Korea University, South Korea)

"Robust and Tunable Organic-Inorganic Hybrid Photocatalysts for CO_2 Reduction"

15:50 – 16:10 Invited Lecture 4-3-2

Akihiko Kudo (Tokyo University of Science, Japan)

"Semiconductor Photocatalysts for CO_2 Reduction Using Water as an Electron Donor"

16:10 – 16:25 Oral Contribution 4-3-1

Kei Inumaru (Hiroshima University, Japan)

"Effects of Reaction Conditions on CO_2 Reduction over Mesoporous Silica-Coated Metal Oxide Photocatalyst"

16:25 – 16:40 Oral Contribution 4-3-2

Qian Wang (University of Cambridge, UK)

"Photocatalytic Z-Scheme System for Selective CO_2 Conversion to Formate with High Efficiency"

16:40 – 16:55 Oral Contribution 4-3-3

Xiao Liu (Central China Normal University, P.R. China)

"Heterogeneous Molecular Rhenium Catalyst for CO_2 Photoreduction in an Aqueous Solution"

16:55 – 17:30 Coffee Break

17:30 – 19:30 **Poster Session 2**

23 November, Saturday

8:00 – 9:00 Registration

9:00 – 9:40 Plenary Lecture 9 Chair: Akihiko Kudo

Harry A. Atwater (California Institute of Technology, USA)

"Pathways to Selective and Efficient Fuels from Sunlight, Water and Carbon Dioxide"

9:40 – 10:20 Plenary Lecture 10 Chair: Ryu Abe

James R. Durrant (Imperial College London, UK)

"Charge Carrier Dynamics Underlying Solar Driven Fuel Synthesis"

10:20 – 11:00 Plenary Lecture 11 Chair: Hideki Hashimoto

Rienk van Grondelle (Vrije Universiteit Amsterdam, The Netherland)

"How Carotenoids and Chlorophylls Control the Primary Processes of Photosynthesis"

11:00 – 12:30 Lunch Break

11:00 – Lunchon Seminar

James Durrant (Imperial College London, Editor-in-Chief of Sustainable Energy & Fuels)

Ryu Abe (Kyoto University, Associate Editor of Sustainable Energy & Fuels)

Charlotte Marshall (Royal Society of Chemistry, Deputy Editor of Energy & Environmental Science and Sustainable Energy & Fuels)

"Meet the Editor: Insights into Publishing in RSC Journals"

Parallel Session 5

Water Splitting 5 Chair: Jae Sung Lee & Tohru Wada

12:30 – 13:00 Keynote Lecture 5-1-1

Roel van de Krol (Helmholtz-Zentrum Berlin, Germany)

"Understanding Photoelectrodes with *in situ* Photoemission Spectroscopy"

13:00 – 13:20 Invited Lecture 5-1-1

Marcella Bonchio (University of Padova and ITM-CNR, Italy)

"Supramolecular Architectures for Artificial Photosynthesis"

13:20 – 13:40 Invited Lecture 5-1-2

Masayuki Yagi (Niigata University, Japan)

"A Highly Efficient Transparent Water Oxidation Catalyst toward Artificial Photosynthesis"

13:40 – 13:55 Oral Contribution 5-1-1

Ailong Li (RIKEN, Japan)

"Over 8000-Hour Stability of Oxygen Evolution from MnO_2 Electrocatalyst"

13:55 – 14:10 Oral Contribution 5-1-2

Shigeyuki Masaoka (Osaka University, Japan)

"Pentanuclear Iron Catalysts for Water Oxidation: Substituents Provide Two Routes to Control Onset Potentials"

14:10 – 14:25 Oral Contribution 5-1-3

Yasuhiro Funahashi (Osaka University, Japan)

"Synthetic Study of Manganese Clusters as Biomimetic Models of the Oxygen Evolving Complex"

14:25 – 15:00 Coffee Break

Advanced Spectroscopy and Theory 2 Chair: Hideki Hashimoto

12:30 – 13:00 Keynote Lecture 5-2-1

Thomas Renger (Johannes Kepler Universität Linz, Austria)

"Structure-Based Theory of Light-Harvesting in Photosynthetic and Artificial Systems"

13:00 – 13:20 Invited Lecture 5-2-1

Tae Kyu Ahn (Sungkyunkwan University, South Korea)

"A Photosynthetic Engine to Make Artificial Cells"

13:20 – 13:40 Invited Lecture 5-2-2

Akihito Ishizaki (Institute of Molecular Science, Japan)

"Intramolecular Vibrations Complement the Robustness of Primary Charge Separation in Photosystem II Reaction Center"

13:40 – 13:55 Oral Contribution 5-2-1

Tae Kyu Kim (Yonsei University, South Korea)

"Dynamics of [FeFe]-Hydrogenase Mimic Complex Using Time-Resolved X-Ray Scattering"

13:55 – 14:10 Oral Contribution 5-2-2

Daisuke Kosumi (Kumamoto University, Japan)

"Excitation Energy Transfer Dynamics of Cyanobacterial Photosynthetic Antenna Phycobilisome"

14:10 – 14:25 Oral Contribution 5-2-3

Hiroshi Isobe (Okayama University, Japan)

"Theoretical Analysis of the Electronic and Spin Structures of the Oxygen-Evolving Complex"

14:25 – 15:00 Coffee Break

CO_2 Reduction 2 Chair: Etsuko Fujita & Xiao Liu

12:30 – 13:00 Keynote Lecture 5-3-1

Osamu Ishitani (Tokyo Institute of Technology, Japan)

"Photocatalytic and Electrocatalytic Reduction of Low Concentration of CO_2"

13:00 – 13:20 Invited Lecture 5-3-1

Sebastiano Campagna (University of Messina, Italy)

"Self-Aggregated Systems Based on Ru(II) Dendrimers for Light-Harvesting and Photoinduced Water Oxidation"

13:20 – 13:40 Invited Lecture 5-3-2

Takeshi Morikawa (Toyota Central R&D Labs., Inc., Japan)

"Solar-Driven CO_2 Reduction in Water Using Earth-Abundant Elements as Molecular and Semiconductor Catalysts"

13:40 – 13:55 Oral Contribution 5-3-1

Hiromu Kumagai (Tohoku University, Japan)

"Enhanced CO_2 Reduction by Interfacial Designing of Molecular Photocathode Modified with Metal Nanoparticles"

13:55 – 14:10 Oral Contribution 5-3-2

Souvik Roy (University of Cambridge, UK)

"Visible-Light Driven Carbon Dioxide Reduction by Metal-Organic Polymer Integrated Carbon Nitride"

14:10 – 14:25 Oral Contribution 5-3-3

Akira Yamaguchi (Tokyo Institute of Technology, Japan)

"The Effect of Histidine on Electrochemical CO_2 Reduction Activity of Iron-Nickel Sulfide"

14:25 – 15:00 Coffee Break

Parallel Session 6

Water Splitting 6 Chair: Roel van de Krol & Masayuki Yagi

15:00 – 15:30 Keynote Lecture 6-1-1

Kyung Byung Yoon (Sogang University, South Korea)

"Giant Artificial Cactus"

15:30 – 15:50 Invited Lecture 6-1-1

Ken Sakai (Kyushu University, Japan)

"Molecular Catalysis and Photocatalysis for Water Splitting and CO_2 Reduction"

15:50 –16:05 Oral Contribution 6-1-1

Emmanouil Giannoudis (LCBM, University of Grenoble Alpes, CEA Grenoble, France)

"A New RuCo Dyad for Dye-Sensitized Hydrogen-Evolving Photocathode"

16:05 – 16:20 Oral Contribution 6-1-2

Murielle Chavarot-Kerlidou (LCBM, University of Grenoble Alpes, CNRS, CEA, France)

"Design of Artificial Photosynthetic Systems Performing Charge Photoaccumulation upon Visible Light Irradiation"

16:20 – 16:35 Oral Contribution 6-1-3

Takashi Nakazono (Rikkyo University, Japan)

"Photochemical and Electrochemical Water Oxidation Reaction Catalyzed by a Dinuclear Cobalt-Hexaphyrin Complex"

16:35 – 17:30 Transfer

Theoretical and Experimental Studies on PSII water oxidation Chair: Kizashi Yamaguchi

15:00 – 15:30 Keynote Lecture 6-2-1

Dimitrios A. Pantazis (Max-Planck-Institut für Kohlenforschung, Germany)

"The Heterogeneous S_3 State of the Oxygen-Evolving Complex: Theoretical and Experimental Perspectives"

15:30 – 16:00 Keynote Lecture 6-2-2

Johannes Messinger (Umeå University, Uppsala University, Sweden)

"Visualizing Water Oxidation in Photosynthesis"

16:00 – 16:20 Invited Lecture 6-2-1

Nick Cox (Australian National University, Australia)

"A New Intermediate in the Activation of Nature's Water Splitting Cofactor."

16:20 – 16:35 Oral Contribution 6-2-1

Hiroshi Ishikita (The University of Tokyo, Japan)

"Proton-Coupled Electron Transfer in Photosystem II"

16:35 – 16:50 Oral Contribution 6-2-2

Shigehiko Hayashi (Kyoto University, Japan)

"Atomistically Deciphering Redox Processes of Metalloproteins with Hybrid Molecular Simulations"

16:50 – 17:05 Oral Contribution 6-2-3

Mitsuo Shoji (University of Tsukuba, Japan)

"Elucidation of the Entire Kok Cycle of the Photosynthetic Water Oxidation Using QM/MM Calculations"

17:05 – 17:30 Transfer

Biofuels 2 Chair: Haining Tian & Seigo Shima

15:00 – 15:30 Keynote Lecture 6-3-1

Olaf Kruse (Bielefeld University, Germany)

"Microalgae as Sustainable Photosynthetic Green Cell Factories for the Synthetic Production of Hydrocarbons"

15:30 – 15:50 Invited Lecture 6-3-1

Eric Maréchal (CNRS, France)

"Biogenesis of Oil Droplets in Diatom Cells"

15:50 – 16:10 Invited Lecture 6-3-2

Seigo Shima (Max Planck Institute for Terrestrial Microbiology, Germany)

"Towards Artificial Methanogenesis: Catalytic Mechanism of [Fe]-Hydrogenase"

16:10 – 16:25 Oral Contribution 6-3-1

Hideaki Ogata (Hokkaido University, Japan)

"Artificial Maturation of the Electron-Bifurcating [FeFe] Hydrogenase from *Thermotoga maritima*"

16:25 – 16:40 Oral Contribution 6-3-2

Taiki Motomura (Okayama University, Japan)

"Structural Analysis of a Minor Ferredoxin Fd2 and Its Comparison with Fd1 from *Thermosynechococcus elongatus*"

16:40 – 16:55 Oral Contribution 6-3-3

Henrik Ottosson (Uppsala University, Sweden)

"Light-Induced Oligomerization of Isoprene to Terpene-Like Hydrocarbons for Bio-Jet Fuels"

16:55 – 17:30 Transfer

17:30 – 19:30 Banquet (Conference Dinner)

24 November, Sunday

8:00 – 9:00 Registration

9:00 – 9:40 Plenary Lecture 12 Chair: Clifford Kubiak

Marc Robert (Université de Paris, France)

"Multi-Electrons CO_2 Reduction with Cobalt and Iron Molecular Catalysts"

9:40 – 10:00 Coffee Break

Parallel Session 7

Water Splitting 7 Chair: Ken Sakai & Marcella Bonchio

10:00 – 10:30 Keynote Lecture 7-1-1

Hiroaki Misawa (Hokkaido University, Japan)

"Enhanced Water Splitting Under Modal Strong Coupling Conditions"

10:30 – 10:50 Invited Lecture 7-1-1

Tohru Wada (Rikkyo University, Japan)

"Water Oxidation Catalyzed by Binuclear Ruthenium Complexes with Deprotonatable Biimidazole Ligands"

10:50 – 11:10 Invited Lecture 7-1-2

Yusuke Kataoka (Shimane University, Japan)

"Photochemical and Electrochemical Hydrogen Evolution Catalyzed by Dirhodium Complexes with Various Bridging Carboxylate Ligands"

11:10 – 11:25 Oral Contribution 7-1-1

Hemin Zhang (Ulsan National Institute of Science & Technology, South Korea)

"Synthesis of Efficient Hematite Photoanodes by Hybrid Microwave Annealing"

11:25 – 11:40 Oral Contribution 7-1-2

Hiroyasu Tabe (Osaka City University, Japan)

"Subsurface Contribution to Photocatalytic Water Oxidation Catalysis of Cyano-Bridged Coordination Polymer Nanoparticles"

Water Splitting 8 Chair: Akihiko Kudo & Kazuhiro Sayama

10:10 – 10:30 Invited Lecture 7-2-1

Zhiliang Wang (The University of Queensland, Australia)

"The Defects Make the Photoelectrodes Effective"

10:30 – 10:50 Invited Lecture 7-2-2

Susumu Saito (Nagoya University, Japan)

"TiO_2-Based Photocatalysis for Selective Organic Synthesis and Fine Chemicals"

10:50 – 11:10 Invited Lecture 7-2-3

Wenjing Song (Chinese Academy of Sciences, P.R. China)

"Light Driven Carbon-Oxygen Cross Coupling Mediated by a Carbon Nitride-Nickel Assembly"

11:10 – 11:25 Oral Contribution 7-2-1

Osamu Tomita (Kyoto University, Japan)

"Visible Light Driven Z-scheme Water Splitting with Transition Metal-substituted Polyoxometalate as an Effective Shuttle Redox Mediator"

11:25 – 11:40 Oral Contribution 7-2-2

Greg F. Metha (University of Adelaide, Australia)

"Photocatalytic Water-Splitting in the Gas Phase"

CO_2 Reduction 3 Chair: Sebastiano Campagna & Ho-Jin Son

10:00 – 10:30 Keynote Lecture 7-3-1

Clifford P. Kubiak (University of California, San Diego, USA)

"Selective Reduction of CO_2 to CO in Water by Molecular Catalysts Attached to Carbon Surfaces."

10:30 – 10:50 Invited Lecture 7-3-1

Sven Rau (Ulm University, Germany)

"Towards an Artificial Chloroplast"

10:50 – 11:10 Invited Lecture 7-3-2

Philippe Schild (European Commission, Belgium)

"Mission Innovation Challenge Converting Sunlight: What Has Been Done and What Is Being Done"

11:10 – 11:25 Oral Contribution 7-3-1

Akinobu Nakada (Chuo University, Japan)

"Light-Driven CO_2 Fixation into Aromatic Amines"

11:25 – 11:40 Oral Contribution 7-3-2

Hiroyuki Takeda (Osaka City University, Japan)

"Photocatalytic CO_2 Reduction Utilizing Abundant Metals as a Center of Metal Complexes"

11:40 – 12:00 Closing Remarks

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International Forum "Artificial Photosynthesis" Chair: Hitoshi Tamiaki

13:30 – 14:00

Richard Cogdell (University of Glasgow, UK)

14:00 – 14:30

Tohru Setoyama (Mitsubishi Chemical Corporation, Japan)

14:30 – 15:00

Haruo Inoue (Tokyo Metropolitan University, Japan)