20th International Conference on Photochemical Conversion and Storage of Solar Energy

Berlin, Germany

July 27th - August 1st, 2014

Hosted by Helmholtz-Zentrum Berlin (HZB)
Brought to you by the IPS International Organizing Committee
Organized by IPS-20 Local Organizing Committee at HZB
Main sponsors: HZB and PECDEMO

HZB Helmholtz Zentrum Berlin

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General Information

Welcome Address

Dear colleagues,

On behalf of my esteemed Co-Chairs and colleagues from the International and Local Organizing Committees, it is a great pleasure to welcome you to Berlin for IPS-20, the 20th International Conference on Photochemical Conversion and Storage of Solar Energy.

Organized every two years since 1974, the IPS conference series offers researchers from academia and industry a forum to meet and discuss the latest progress in photochemical energy conversion and storage. Since the previous IPS conference in Pasadena in 2012, there have been exciting developments in the field of photochemical energy conversion. Examples are the spectacular development of perovskite-based solar cells (cited by Science as one of the Top-10 scientific breakthroughs in 2013), and the impressive progress being made on materials and devices for photoelectrochemical water splitting and CO_2 conversion. Despite these breakthroughs and new insights, many questions on e.g. photo-induced charge transfer, electrocatalytic reaction mechanisms, effective light management strategies and chemical engineering aspects of photochemical devices remain to be answered.

Berlin is a perfect place to discuss these recent developments and open questions, and to exchange ideas on how to move forward. Home to four universities, seven universities of applied sciences, 28 state-recognized private universities and more than 70 other research institutes, its reputation as a "capital of science" is well deserved. Berlin is also known for attracting many young artists and start-up companies, and with its 22 technology parks it offers a fertile breeding ground for creative new science and technology. Last but not least, its rich and varied history offers an inspiring and entertaining venue for IPS-20.

We look forward to an exciting week of science. Welcome to Berlin!

Roel van de Krol
IPS-20 Conference Chair

Contact:

Helmholtz-Zentrum Berlin für Materialien und Energie GmbH
Institute for Solar Fuels
Hahn-Meitner-Platz 1
14109 Berlin, Germany

Meeting Venue

Maritim Hotel Berlin
Stauffenbergstraße 26, Berlin, Germany

Registration Desk

The registration desk is located by the entrance of Maritim Hotel. The opening hours are as follows:

Sunday, 27 July 2014	16:00 – 18:00
Monday, 28 July 2014	07:30 – 18:00
Tuesday, 29 July 2014	08:00 – 18:00
Wednesday, 30 July 2014	08:00 – 13:30
Thursday, 31 July 2014	08:00 – 14:30
Friday, 1 August 2014	08:00 – 09:00

Badges

IPS-20 identification badges are mandatory and required for admission to all sessions and the Exhibition.

Presentation Guidelines

Oral Presentation

Oral presenters are kindly asked to report to the session chair at least 15 minutes before the beginning of their sessions. Presenters are allowed to use their own laptops, although Windows-laptops with Powerpoint 2013 (English version) are available in each session's room. When these are used, the presentation needs to be uploaded before the start of the session. Other standard audiovisual equipment includes a projector, a screen, a laser pointer, and a wireless microphone.

A speaker-ready room is available to test the compatibility of your presentations, and is located on the ground floor of Maritim Hotel, Salon 4.

Presentation time:

- Plenary lectures: 45 mins including Q&A
- Keynote lectures: 30 mins including Q&A
- Regular oral lectures: 15 mins including Q&A

Poster Presentation

All presenters are requested to put up their posters during lunch (preferred) or during the afternoon break on their own presentation day. All posters should be removed at the end of each poster session (20:00).

Lunch

Lunch is included in the registration fee and will be provided on the first floor of the Maritim hotel. IPS-20 registration badges are required to enter the lunch area.

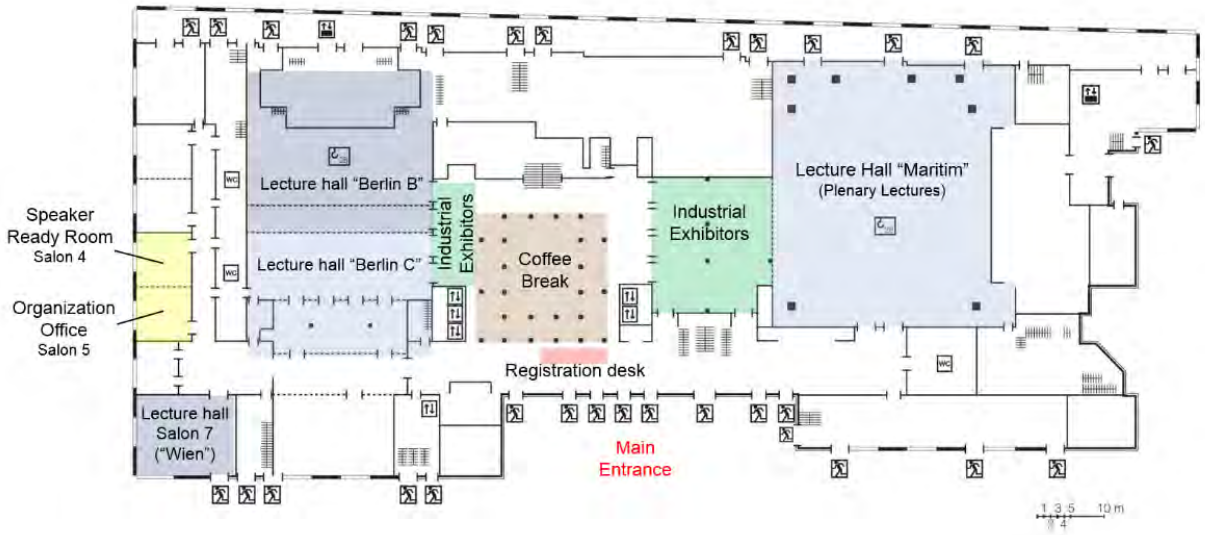
Floor Plan

Hotel Maritim, Berlin

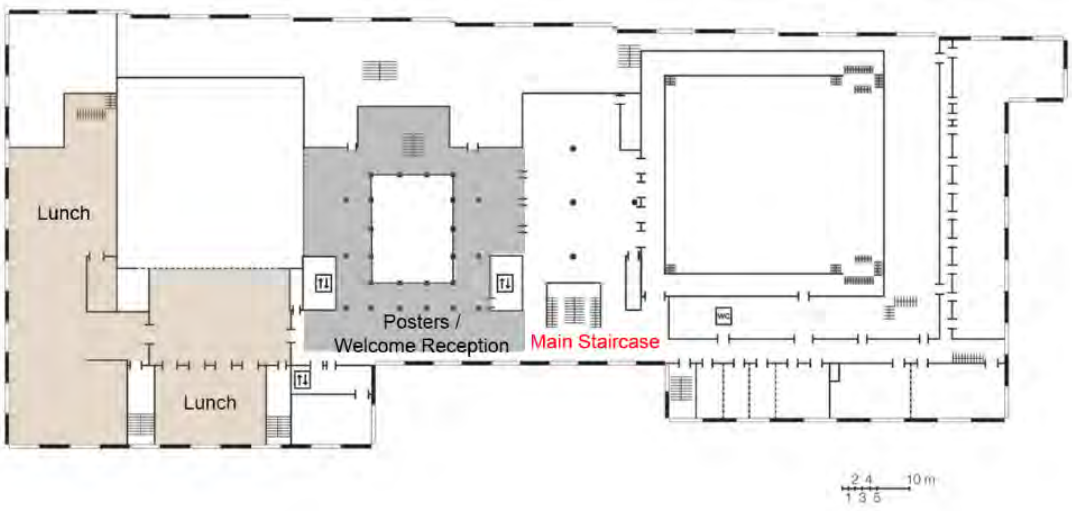
Registration desk: Main entrance
Organization office: Salon 5
Welcome reception: Galerie
Opening ceremony: Lecture Hall Maritim
Plenary sessions: Lecture Hall Maritim
Parallel sessions: Lecture Hall Maritim, Berlin B, Berlin C, Salon 7
Poster sessions: Galerie
Closing ceremony: Lecture Hall Maritim

Coffee break: Grand Hall
Lunch: Restaurant Maritim + Brasserie
Speaker Ready Room: Salon 4

Ground Floor



First Floor



Program Overview IPS-20

	Sunday 27 July	Monday 28 July	Tuesday 29 July	Wednesday 30 July	Thursday 31 July	Friday 1 August
08:30		Opening Ceremony	**Nate Lewis** Water Splitting Chair: W. Jaegermann	**Anders Hagfeldt** Mesoscopic Solar Cells Chair: H. Imahori	**John Turner** Water Splitting Chair: I. Chorkendorff	**Osamu Ishitani** CO_2 Reduction Chair: D. Bahnemann
08:45		**Michael Grätzel** Solar Cells & Fuels Chair: R. van de Krol				
09:15		**David Cahen** Perovskite Solar Cells Chair: R. van de Krol	**Nam-Gyu Park** Perovskite Solar Cells Chair: W. Jaegermann	**Leif Hammarström** Artificial Photosynthesis Chair: H. Imahori	**Wolfg. Schuhmann** Combinatorial screening Chair: I. Chorkendorff	**Ib Chorkendorff** Water Splitting Chair: D. Bahnemann
10:00		Coffee break	Coffee break	Coffee break	Coffee break	Coffee break
10:30	11:00 – 16:00 Workshop "Synchrotron Techniques for Photochemical Energy Conversion" at BESSY-II, Berlin-Adlershof	Parallel Sessions F1-D1-P1-Q1 F1: P. Strasser D1: M. Archer P1: A. Emeline	Parallel Sessions PA1-V1-C1-PM2 PA1: H. Tuller C1: M. Koper	Parallel Sessions PA4-V3-PM3-M1 PM3: M. Wark M1: L. Sun	Parallel Sessions PA5-PM4-H1-M2 PA5: T. Yamada M2: E. Reisner	Parallel Sessions O3-PM5-H4-E3 O3: H. Dau H4: J. Benck
12:15		Lunch	Lunch	Lunch	Lunch	Poster Awards Intro IPS-21 Closing Ceremony
13:30		**Wonyong Choi** Photocatalysis Chair: A. Emeline	**Robert Schlögl** Catalysts for Solar Fuels Chair: L. Palmisano	**Avner Rothschild** Water Splitting Chair: P. Kamat	**Prashant Kamat** Charge transfer in Q-dot Solar Cells Chair: G. Hodes	
14:30		Parallel Sessions W1-D2-P2-Q2 P2: H. Irie	Parallel Sessions PA2-D4-C2-P4 PA2: D. Wang C2: M. Kanan	14:15 Free time (Excursions, bilateral discussions, project meetings, relaxation, dinner, drinks, etc.)	Parallel Sessions O1-PC1-H2-E1 O1: J. Rossmeisl E1: S. Boettcher	
16:00	16:00 – 18:00	Coffee break	Coffee break		Coffee break	
16:30	Registration	Parallel Sessions W2-D3-P3-PM1 W2: S. Haussener	Parallel Sessions PA3-V2-D5-B1 PA3: B. Parkinson		Parallel Sessions O2-PC2-H3-E2 PC2: P. Vesborg	
18:00 20:00	18:00 – 20:00 Welcome Reception (Galerie)	Poster session I	Poster session II		18:45 – 23:00 Conference Dinner River cruise Departure at 19:00 (sharp!) from station "Märkisches Ufer"	

Plenary lectures:	45 min	(40'+5')
Keynote lectures:	30 min	(25'+5')
Regular oral lectures:	15 min	(12'+3')

Designated rooms for sessions: **XX-XX-XX-XX = Saal Maritim – Berlin B – Berlin C – Salon 7**

Symposium abbreviations: **B** = Biomimetics; **C** = CO_2 reduction; **D** = Dye-Sensitized Solar Cells; **E** = Photoinduced Electron Transfer; **F** = Solar Fuels; **H** = Photocatalytic Reduction; **M** = Molecular Photosynthesis; **O** = OER/HER catalysis; **P** = Photocatalysis; **PA** = Photoanodes; **PC** = Photocathodes; **PM** = Photoelectrochemical / photoactive materials; **Q** = Quantum dot systems; **V** = Perovskite solar cells; **W** = Water splitting

Social Programs

Welcome Reception — Sunday 27 July 2014, 18:00-20:00

A reception will be held on Sunday, 27 July 2014, from 18:00 to 20:00. It will be located in the Galerie of Hotel Maritim, Berlin (first floor). All registered conference participants are invited to attend, small snacks and drinks will be served.

Excursions — Wednesday 30 July 2014, 14:30-18:00

We have arranged two excursions for interested conference attendees: (i) Berlin guided tour and (ii) Potsdam guided tour. Excursions participants are cordially asked to gather at the entrance of the conference hotel by 14:30. Transport buses have been arranged to leave at 14:30 (sharp), and bring the participants back to the conference hotel at the end of the tour.

Interested conference attendees who have not registered for this event, can register at the registration desk (if places are still available). The cost is 20 EUR for the Berlin guided tour, and 30 EUR for the Potsdam guided tour. Note that only payment in cash will be accepted.

Conference Dinner — Thursday 31 July 2014, 18:45-23:00

The conference dinner will take place on a river cruise ship, the MS "Alexander von Humboldt", on Thursday, 31 July 2014. The ship will depart at from station "Märkisches Ufer" and will travel on the river Spree through the city of Berlin, with the following highlights: Mühlendammlock, Nikolaiviertel, Berlin Cathedral, Museum Island, Reichstag building, Government quarter, House of World Cultures, Bellevue Palace, Charlottenburg Palace, etc. A typical German buffet will be served.

Only pre-paid and invited participants can join this conference dinner. Interested conference attendees who have not registered for this event can register at the registration desk. Note that limited places are available.

All participants of conference dinner are cordially asked to gather at the entrance of the conference hotel by 18:15. Transport buses have been arranged to leave at 18:20 (sharp) and bring the participants to the dinner's location.

Alternatively, participants who do not wish to go from the conference hotel can go directly to the "Märkisches Ufer" station (see map on the right). You can take public transportation line U2 and alight at station Märkischer Museum, or line U8, S3, S5, S7 or S9 and alight at station Jannowitzbrücke. The address of the station is Wallstrasse 57, 10179 Berlin. Please be there by 18:45, since the ship will depart at 19:00 (sharp). Please note that dinner coupon is required for admission.

Poster Awards — Friday 1 August 2014, 12:15-12:40

At the end of the conference, four poster awards (2 x 450 EUR and 2 x 150 EUR) will be given to the first and second best poster presenters on each day (Monday and Tuesday). The jury will judge the posters based on the following criteria: poster structure/format, scientific approach and presentation. In addition, one special prize (book voucher) will be awarded for the most creative and innovative poster contribution at IPS-20. We thank the sponsors below for their generous support for the IPS-20 Poster Awards.

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Plenary Lectures IPS-20

	Monday 28 July
08:30	Opening Ceremony
08:45	"Light harvesting and charge carrier collection in mesoscopic solar energy conversion systems" **Michael Grätzel** (*Laboratory of Photonics and Interfaces, EPFL, Switzerland*)
09:30	**"**Hybrid Organic/Inorganic Perovskite Solar Cells: How Do They Work and What Are They Good For?" **David Cahen** (*Weizmann Institute of Science, Israel*)
13:30	"Photocatalysis of Semiconductor Nanoparticles: Some Outstanding Characteristics of Photooxidants and Reactivity" **Wonyong Choi** (*Pohang University of Science and Technology, Korea*)
	Tuesday 29 July
08:30	"Sunlight-Driven Hydrogen Formation by Membrane-Supported Photoelectrochemical Water Splitting" **Nate Lewis** (*California Institute of Technology, USA*)
09:15	"Methylammonium and Fomamidinium Lead Iodide Perovskite Solar Cells with Efficiencies Exceeding 16%" **Nam-Gyu Park** (*Sungkyunkwan University, Korea*)
13:30	"Heterogeneous Catalysts fort he Synthesis of Solar Fuels: Status and Perspectives" **Robert Schlögl** (*Fritz Haber Institute of the Max Planck Society, Germany*)
	Wednesday 30 July
08:30	"Design Rules to High-Efficiency Mesoscopic Solar Cells" **Anders Hagfeldt** (*Uppsala University, Sweden*)
09:15	"Mechanism of Artificial Photosynthesis" **Leif Hammarström** (*Uppsala University, Sweden*)
13:30	"Ultrathin Film Fe_2O_3 Photoanodes for Solar Energy Conversion and Storage" **Avner Rothschild** (*Technion, Israel*)
	Thursday 31 July
08:30	"Challenges in Photoelectrochemical Water Splitting" **John Turner** (*National Renewable Energy Laboratory, USA*)
09:15	" High-throughput Combinatorial Screening of Semiconductor Libraries using Photocurrent and Photocurrent-Spectroscopy in an Optical Scanning Droplet Cell" **Wolfgang Schuhmann** (*Ruhr-University Bochum, Germany*)
13:30	"Hole Transfer Processes in Quantum Dot and Organometalhalide Solar Cells" **Prashant V. Kamat** (*University of Notre Dame, USA*)
	Friday 1 August
08:30	"Development of Visible-Light Driven Photocatalysts for CO2 Reduction" **Osamu Ishitani** (*Tokyo Institute of Technology, Japan*)
09:15	"Elements of a Tandem Design for Water Splitting: Combining Electrocatalysts with Semiconductors" **Ib Chorkendorff** (*Technical University of Denmark, Denmark*)

Parallel Sessions — Monday 28 July 2014 10:45 - 12:15

Time	F1 — Solar Fuels Chair: Avner Rothschild (Technion, Israel) Room: Maritim	D1 — Dye Sensitized Solar Cells (DSSC) Chair: Songyuan Dai (Chinese Academy of Sciences, China) Room: Berlin B
10:45 - 11:15	**F1-1 (keynote)** **Sunlight, Free Electrons, and Molecular Bonds: the Electrocatalysis of Solar Fuels** **P. Strasser** TU Berlin, Germany	**D1-1 (keynote)** **The IPS Conference Series** **M. Archer** University of Cambridge, UK
11:15 - 11:30	**F1-2** **Fabrication of Silicon Nano/Micro-Structured Solar-to-Fuel Devices** **R. Elbersen**, H. Gardeniers, J. Huskens University of Twente, The Netherlands	**D1-2** **Dye-Sensitized Photocathodes** **U. Bach**[1,2], T. Daeneke[2], S. Powar[1] [1]Monash University, Australia [2]Commonwealth Scientific and Industrial Research Organization, Australia
11:30 - 11:45	**F1-3** **BioSolarCells: Technologies for Harvesting Solar Energy More Efficiently** **W. A. Smith**[1], R. Klein-Lankhorst[2] [1]Delft University of Technology, The Netherlands [2]BioSolarCells, The Netherlands	
11:45 - 12:00	**F1-4** **Life-Cycle Net Energy Analysis of Large-Scale Hydrogen Production via Photo-electrochemical Water-Splitting** **J. B. Greenblatt**[1,2], R. Sathre[1,2], C. Scown[1,2], W. R. Morrow[1,2], J. Stevens[1,2], J. W. Ager[1,2], I. Sharp[1,2], F. Houle[1,2] [1]Lawrence Berkeley National Laboratory, USA [2]Joint Center for Artificial Photosynthesis, USA	**D1-3** **Catalyzing Halide Chemistry at Sensitized Mesoporous TiO_2 Thin Films: Breaking the Glass Ceiling for Efficiency in Dye-Sensitized Solar Cells** H.-Y. Chen, **S. Ardo** University of California Irvine, USA
12:00 - 12:15		**D1-4** **Accurate Measurement of Incident Photon-to-Electron Conversion Efficiency (IPCE) for Sensitized Nanocrystalline Solar Cells** C. Li, Y. Luo, X. Guo, H. Wu, D. Li, **Q. Meng** Chinese Academy of Sciences, China

Parallel Sessions — Monday 28 July 2014 10:45 - 12:15

Time	**P1 — Photocatalysis** Chair: Yaron Paz (Technion, Israel) Room: Berlin C	**Q1 — Quantum Dot Cells** Chair: Ib Chorkendorff (DTU, Denmark) Room: Salon 7
10:45 - 11:00	**P1-1 (keynote)** **Interplay Between Physical and Chemical Events in Photoprocesses in Heterogeneous Systems** **A. V. Emeline** Saint-Petersburg State University, Russia	**Q1-1** **Energy and Interface Engineering for Quantum Dots Solar Cells and Perovskite Solar Cells** **Q. Meng**, D. Li, Y. Luo Chinese Academy of Sciences, China
11:00 - 11:15		**Q1-2** **Enhanced Photovoltaic Performance in a P3HT/Lead Chalcogenide Quantum-Dot/Carbon-Nanomaterial Hybrid** **D. Wang**[1], H. Hu[1], J. Li[1], N. Zhao[1], J. Ye[1,2] [1]Tianjin University, China [2]National Institute for Materials Science, Japan
11:15 - 11:30	**P1-2** **Electron Traps in Metal Oxide Particulate Photocatalysts as a Possible Key for Understanding and Explaining Their Photocatalytic Activities** **B. Ohtani**, M. Takase, A. Nitta Hokkaido University, Japan	**Q1-3** **Ultrafast Electron and Hole Transfer Dynamics in Super-Sensitized Quantum Dot Solar Cells** **H. N. Gosh** Bhabha Atomic Research Centre, India
11:30 - 11:45	**P1-3** **Plasmonic Interaction in Defective Au/TiO2 Heterostructures: Effects on Photocatalytic Activity** **F. Riboni**[1], A. Naldoni[2], M. Marelli[2], M. Malvestuto[3], F. Bossola[4], R. Psaro[2], V. Dal Santo[2], E. Selli[1] [1]Universitá degli Studi di Milano, Italy [2]CNR-Istituto di Scienze e Tecnologie Molecolari, Italy [3]Sincrotrone Trieste, Italy	**Q1-4** **Study of Solid State Hybrid Solar Cells Based on Titania, Sb_2S_3 and P3HT** **P. Lianos,** A. Nikolakopoulou, D. Raptis University of Patras, Greece
11:45 - 12:00	**P1-4** **Visible-light Induced Long-range Charge Separation in Gold Nanoparticle-Incorporated Mesoporous Titanium (IV) Oxide Film Formed on Fluorine-Doped Tin (IV) Oxide** **S.-I. Naya**, T. Kume, H. Tada Kinki University, Japan	**Q1-5** **Exploring the Potential of Zinc Copper Indium Sulfide Quantum Dots in Sensitized Solar Cells** **R. Gómez**[1], N. Guijarro[1], M.-P. Galache[1], T. Lana-Villarreal[1], S. A. Haque[2] [1]Universitat d'Alacant, Spain [2]Imperial College London, UK
12:00 - 12:15	**P1-5** **The Use of Sacrificial Reagents in Water Photocatalysis** **J. Schneider**[1], A. Hakki[1], T. Kandiel[2], D. Bahnemann[1] [1]Leibniz Universität Hannover, Germany [2]Sohag University, Egypt	**Abstract Withdrawn**

Parallel Sessions — Monday 28 July 2014 14:30 - 16:00

Time	**W1 — Water Splitting** Chair: John Turner (NREL, USA) Room: Maritim	**D2 — DSSC Redox Shuttles** Chair: Gerko Oskam (CINVESTAV, Mexico) Room: Berlin B
14:30 - 14:45	**W1-1** **Design Parameters for a Tandem 2-Photon Water Splitting Device** **B. Seger**, I. Castelli, P. C. K. Vesborg, O. Hansen, I. Chorkendorff Technical University of Denmark, Denmark	**D2-1** **High-performance DSC for Energy Harvesting Devices** **H. Matsui**, D. Matsumoto, K. Okada, N. Tanabe Fujikura Ltd., Japan
14:45 - 15:00	**W1-2** **Efficient Photoelectrochemical Water Splitting with a Surface-Functionalized III-V Dual Junction Tandem Structure** **M. M. May**[1], T. Hannappel[1,2], K.T. Fountaine[3], D. Lackner[4], F. Dimroth[4], H. Kriegel[1], R. van de Krol[1], H. A. Atwater[3], H. J. Lewerenz[1,3] [1]Helmholtz-Zentrum Berlin, Germany [2]Technische Universität Ilmenau, Germany [3]California Institute of Technology, USA [4]Fraunhofer Institute for Solar Energy Systems ISE, Germany	**D2-2** **Highly Stable Supramolecular Hemicage Cobalt Mediators for Dye Sensitezed Solar Cells** **M. Freitag**, W. Yang, R. Jiang, G. Boschloo, A. Hagfeldt Uppsala University, Sweden
15:00 - 15:15	**W1-3** **All-Silicon Thin Film Solar Cell Based Photoelectrodes for Efficient Hydrogen Production: Cell Structure Development and Photovoltaic-Photoelectrochemical System Comparison** **F. Urbain**, V. Smirnov, J.-P. Becker, U. Rau, F. Finger Forschungszentrum Jülich, Germany	**D2-3** **Tris(acetylacetonato) Metal Complexes for Dye Sensitized Solar Cells Redox Mediators** **I. R. Perera**, Y. Tachibana, P. Bäuerle, C. A. Ohlin, U. Bach, L. Spiccia Monash University, Australia
15:15 - 15:30	**W1-4** **All-Silicon Thin Film Solar Cell Based Photoelectrodes for Efficient Hydrogen Production: Interface Design and Corrosion Stability** **J.-P. Becker**, F. Urbain, V. Smirnov, U. Rau, F. Finger Forschungszentrum Jülich, Germany	**D2-4** **Secure and Efficient Nano-Clay Electrolyte for Dye-Sensitized Solar Cells** **S. Uchida**, T. Kubo, H. Segawa The University of Tokyo, Japan
15:30 - 15:45	**W1-5** **Direct Solar Water Splitting with Inverted Metamorphic III-V Multi-junction Devices** **H. Döscher**[1,2], J. F. Geisz[1], R. M. France[1], M. A. Steiner[1], S. Ward[1], S. Rios[1], T. G. Deutsch[1], J. A. Turner[1] [1]National Renewable Energy Laboratory, USA [2]Technische Universität Ilmenau, Germany	**D2-5** **Development of Semi-Solid Fast-Electron-Transfer Ionic-Liquid Based Charge Relays for Dye-Sensitized-Solar-Cells** **P. J. Kulesza**, J. Orlowska, I. A. Rutkowska University of Warsaw, Poland
15:45 - 16:00	**W1-6** **Geometry Optimized Gallium Phosphide Nanowires for Efficient Solar Water Splitting with a Single Junction Device** **A. Standing**[1], L. Gao[1], S. Assali[1], M. A. Verheijen[2], P. H. L. Notten[1], J. E. M. Haverkort[1], E. P. A. M. Bakkers[1,3] [1]Eindhoven University of Technology, The Netherlands [2]Philips Innovation Services Eindhoven, The Netherlands [3]Delft University of Technology, The Netherlands	**Abstract Withdrawn**

Parallel Sessions — Monday 28 July 2014 14:30 - 16:00

Time	**P2 — Photocatalysis** Chair: Michael Wark (University Oldenburg, Germany) Room: Berlin C	**Q2 — Quantum Dot Cells** Chair: Defa Wang (Tianjin University, China) Room: Salon 7
14:30 - 15:00	**P2-1 (keynote)** **Photocatalytic Water-Splitting under Visible Light Irradiation** **H. Irie**[1,2] [1]University of Yamanashi, Japan [2]Japan Science and Technology Agency, Japan	**Q2-1** **Effect of Excited State Entropy on the Energy Conversion Efficiency with Excitonic Semiconductors** **Frank Osterloh** University of California Davis, USA
15:00 - 15:15	**P2-2** **On Truths, Myths and PR in the Photocatalytic Degradation of Dyes** **Y. Paz** Technion, Israel	**Q2-2** **Effect of TiO2 Crystal Orientation on the Adsorption of CdSe Quantum Dots Characterized by the Photoacoustic and Photoelectron Yield Methods** **T. Toyoda**[1,2], W. Yindeesuk[1], K. Kamiyama[3], S. Hayase[4], Q. Shen[1,2] [1]The University of Electro-Communications, Japan [2]CREST, Japan Science and Technology, Japan [3]Bunkoukeiki Co. Ltd., Japan [4]Kyushu Institute of Technology, Japan
15:15 - 15:30	**P2-3** **Superior Cocatalytic Behavior of Reduced Graphene Oxide for the Oxidation of Arsenic and the Formation of Hydrogen Peroxide in TiO_2-based Photocatalytic Systems** **G.-H. Moon**, W. Choi Pohang University of Science and Technology, Republic of Korea	**Q2-3** **Effect of S^{2-} Ligand on the CdSe Quantum Dot Sensitized Solar Cells** **J. Zhu**[1], F. Liu[1], S. Dai[1,2] [1]Chinese Academy of Sciences, China [2]North China Electric Power University, China
15:30 - 15:45	**P2-4** **Acquisition of O2 Adsorption Isotherms as Supplementary Analysis for Thorough Characterization of Polycrystalline Titanium Dioxide Photocatalysts** A. Moiseev[1], **M. Krichevskaya**[2], D. Klauson[2], G. Hauser[1], A. P. Weber[1], B. Lohrengel[3], J. Deubener[1] [1]TU Clausthal, Germany [2]Tallinn University of Technology, Estonia [3]Heilbronn University, Germany	**Q2-4** **Ultrafast Hot and Thermalized Hole Extraction from Photo-excited CdSe Quantum Dot by Molecular Adsorbate** **P. Singhal**, H. N. Ghosh Bhabha Atomic Research Centre, India
15:45 - 16:00	**P2-5** **Organophotocatalyst Polymer Films and Their Multilayerization That Efficiently Utilize Natural Sunlight in a One-pass-flow Water Purification System** **K. Nagai**[1], Y. Yasuda[1], T. Iyoda[1], T. Abe[2] [1]Tokyo Institute of Technology, Japan [2]Hirosaki University, Japan	**Q2-5** **Effect of the Nature of Cd Salt Precursor on the Quality of CdS Nanoparticles Deposited on Nanoparticulate Titania Films by the SILAR Method** **P. Lianos**[1,2], S. Sfaelou[1] [1]University of Patras, Greece [2]FORTH/ICE-HT, Greece

Parallel Sessions — Monday 28 July 2014 16:30 - 18:00

Time	**W2 — Water Splitting** Chair: Mary Archer (Cambridge University, UK) Room: Maritim	**D3 — DSSC Dyes** Chair: Nam-Gyu Park (Sungkyunkwan University, Korea) Room: Berlin B
16:30 - 16:45	**W2-1 (keynote)** **Design Guidelines for Practical Photoelectrochemical Reactors** **S. Haussener** EPFL, Switzerland	**D3-1** **Molecular Engineering of Porphyrins for Dye-Sensitized Solar Cells** **H. Imahori** Kyoto University, Japan
16:45 - 17:00		**D3-2** **Novel Near-Infrared Squaraine Sensitizers for Dye-Sensitized Solar Cells** **C. Qin**, A. Islam, L. Han National Institute for Materials Science, Japan
17:00 - 17:15	**W2-2** **Modeling of Optical and Electrical Losses in Photoelectrochemical Cells** **P. Cendula**, J. O. Schumacher Zurich University of Applied Sciences, Switzerland	**D3-3** **Dye Sensitized Solar Cells with Cyclometalated Dyes: Path to Longterm Stability** **S. Soman**, T. W. Hamann Michigan State University, USA
17:15 - 17:30	**W2-3** **Enhancement of the Photoelectrochemical Performance of $CuWO_4$ Thin Films for Solar Water Splitting by Plasmonic Nanoparticle Functionalization** **D. Dolat**[1], M. Valenti[1], S. Mozia[2], G. Biskos[1], A. Schmidt-Ott[1], W. Smith[1] [1]Delft University of Technology, The Netherlands [2]West Pomeranian University of Technology, Poland	**D3-4** **Synthesis, Characterization and Photoelectrochemical Performance of *cis*-[Ru(Me_4-phen)($dcbH_2$)($NCS)_2$] as a Dye-Sensitizer for Solar Cells** **A. S. Polo** Federal University of ABC, Brazil
17:30 - 17:45	**W2-4** **Electrochemical and Microwave Routes for the Synthesis of Nanostructured α-Fe_2O_3 and Ferrites and Their Application as Photoelectrodes** **D. H. Taffa**[1], I. Hamm[2], A. Mudring[2], M. Wark[1] [1]Carl von Ossietzky University Oldenburg, Germany [2]Ruhr-University Bochum, Germany	**D3-5** **Triphenylamine Dyes with Julolidine as Secondary Electron Donor for Dye-Sensitized Solar Cells** **F. Kong**[1], G. Wu[1], J. Li[1], W. Chen[1], S. Dai[1,2] [1]Chinese Academy of Sciences, China [2]North China Electric Power University, China
17:45 - 18:00	**Abstract Withdrawn**	**Abstract Withdrawn**

Parallel Sessions — Monday 28 July 2014 16:30 - 18:00

Time	**P3 — Photocatalysis** Chair: Wonyong Choi (POSTECH, Korea) Room: Berlin C	**PM1 — PEC Materials** Chair: Peter Strasser (TU Berlin, Germany) Room: Salon 7
16:30 - 16:45	**P3-1** **Surface-Modified TiO2 Photocatalysts Prepared by a Photosynthetic Route** **S. Neubert**, A. Ramakrishnan, B. Mei, J. Strunk, L. Wang, M. Kauer, Y. Wang, R. Beranek Ruhr-University Bochum, Germany	**PM1-1** **Absorption of UV, Visible and Infrared Light Using Quantum Dots, Nanosized Au, and Upconversion Nanoparticles Sensitized ZnO Nanowires-array Photoelectrodes for Water Splitting** **R.-S. Liu**, C.-K. Chen, C.-J. Chen, H. M. Chen, S.-F. Hu National Taiwan University, Taiwan
16:45 - 17:00	**P3-2** **A New Method for the Fabrication of Highly Porous Water Stable Nanoparticle Layers with Material Gradients for Enhanced Charge Separation** **S. O. Schopf**, H. K. Grossmann, L. Mädler University of Bremen, Germany	**PM1-2** **Effect of Electric Fields on Charge Carrier Dynamics in Metal Oxides for Solar Fuels** **S. R. Pendlebury**[1], M. R. Morris[1,2], Y. Ma[1], F. le Formal[1], J. R. Durrant[1] [1]Imperial College London, UK [2]Queen Mary University of London, UK
17:00 - 17:15	**P3-3** **Photocatalytic Synthesis of Aromatic Amines by Different Pathways Empoying Metal-loaded TiO_2** J. Castells[1,2], **A. Hakki**[1], D. W. Bahnemann[1] [1]Leibniz Universität Hannover, Germany [2]Universidad de Valencia, Spain	**PM1-3** **First-row Transition Metal Oxide Nanoparticle Water-Oxidation Catalysts Made by Pulsed-Laser Ablation in Liquids** **A. M. Müller**, J. D. Blakemore, J. R. Winkler, H. B. Gray California Institute of Technology, USA
17:15 - 17:30	**P3-4** **Efficient Photocatalysts for Water Splitting: Influence of Surface Structure and Facets** **J. Tang**, D. J. Martin, S. Moniz University College London, UK	**PM1-4** **Photoelectrochemical Properties of Metal Oxide Materials for Water Splitting as a Function of Film Characteristics** M. R. Pérez[1], C. Chacón[2], G. R. Gattorno[1], **G. Oskam**[1] [1]CINVESTAV-IPN, Mexico [2]CICATA-Legaria, Mexico
17:30 - 17:45	**P3-5** **TiO2 and ZnO Thin Layers: Comparison of Hydrophilic Behavior** **A. V. Rudakova**, U. G. Oparicheva, A. E. Grishina, A. V. Emeline Saint-Petersburg State University, Russia	**PM1-5** **Lattice Variations for Bandgap Engineering of Defect-Pyrochlore Structured Photocatalysts Towards Visible Light Water Splitting** L. Schwertmann[1], M. Wark[2], **R. Marschall**[3] [1]Ruhr-University Bochum, Germany [2]Carl von Ossietzky University, German [3]Justus-Liebig-University Giessen, Germany
17:45 - 18:00	**P3-6** **Size-selective Photocatalytic Decomposition of Organic Molecules Using Anodic Crystalline TiO2 Mesoporous Films** **E. Tsuji**, Y. Taguchi, Y. Aoki, H. Habazaki Hokkaido University, Japan	**PM1-6** **Effect of Texture, Porosity, Doping, Surface Chemistry and Stoichiometry on the Photoelectrochemical Activity of $BiVO_4$ Electrodes** **A. Chemseddine**, F. F. Abdi, R. van de Krol, C. Otalora, A. Loiaza, T. Mete, U. Michalczik, J. Plescher, K. Ullrich, C. Büchner Helmholtz-Zentrum Berlin, Germany

Parallel Sessions — Tuesday 29 July 2014 10:30 - 12:15

Time	**PA1 — Water Splitting Photoanodes** Chair: Bruce Parkinson (University of Wyoming, USA) Room: Maritim	**V1 — Perovskite Solar Cells** Chair: David Cahen (Weizmann Institute of Science, Israel) Room: Berlin B
10:30 - 11:00	**PA1-1 (keynote)** **Influence of Oxidation State on Charge Carrier Density and Trap State Occupancy in Ti Doped $Fe_2O_{3+\delta}$** J. Engel[1], F. F. Abdi[2], R. van de Krol[2], **H. L. Tuller**[1] [1]Massachusetts Institute of Technology, USA [2]Helmholtz-Zentrum Berlin, Germany	**V1-1** **Perovskite-based Full Crystalline Photovoltaic Cells of High Voltage Performance** A. Ishii, A. Jena, **T. Miyasaka** Toin University of Yokohama, Japan
11:00 - 11:15	**PA1-2** **Self-organized Micron-scale Architectures for Photonic Visible Light Trapping in Metal Oxide Water Splitting Photoanodes** **F. Boudoire**[1,2], R. Toth[1], J. Heier[1], A. Braun[1], E. C. Constable[2] [1]EMPA, Switzerland [2]University of Basel, Switzerland	**V1-2** **Fast Crystallization Protocol for Highly Efficient Perovskite Thin Film Solar Cells** **M. Xiao**, F. Huang, U. Back, Y.-B. Cheng, L. Spiccia Monash University, Australia
11:15 - 11:30	**PA1-3** **$NiO/\alpha\text{-}Ni(OH)_2$ Electrocatalyst Modified Hematite Electrode Showing Good Hydrogen Evolution from Water Splitting Reaction** **D. K. Bora**[1], A. Braun[1], E. C. Constable[2] [1]EMPA, Switzerland [2]University of Basel, Switzerland	**V1-3** **Molecular Engineering of Low Band Gap Hole Transporting Material for Perovskite Solar Cells** **M. K. Nazeeruddin**[1], P. Qin[1], S. Paek[2], I. Dar[1], N. Pellet[1], J. Ko[2], M. Grätzel[1] [1]EPFL, Switzerland [2]Korea University, Republic of Korea
11:30 - 11:45	**PA1-4** **Highly Efficient Hematite Photoanode for Solar Water Splitting** **Gurudayal**, P. S. Bassi, J. Barber, L. H. Wong Nanyang Technological University, Singapore	**V1-4** **Dual Functional Additive for Perovskite Solar Cells** H. Zhang[1], Y. Shi[1], **T. Ma**[1,2] [1]Dalian University of Technology, China [2]Kyushu Institute of Technology, Japan
11:45 - 12:00	**PA1-5** **Enhanced Photoelectrochemical Water Splitting over Undoped and Ti-doped $\alpha\text{-}Fe_2O_3$ Electrodes by Electrochemical Reduction Pretreatment** **W. Leng**[1], P. Shangguan[2], S. Tong[2], H. Li[1] [1]Zhejiang University, China [2]Zhejiang University of Technology, China	**V1-5** **"In-depth" Analysis of the Chemical and Electronic Surface Structure of $CH_3NH_3PbI_{3-x}Cl_x$ Perovskite Solar Cell Absorbers using Photoelectron Spectroscopy** **D. E. Starr**[1], G. Sadoughi[2], E. Handick[1], R. G. Wilks[1], J.-H. Alsmeier[1], L. Köhler[1], M. Gorgoi[1], H. Snaith[2], M. Bär[1,3] [1]Helmholtz-Zentrum Berlin, Germany [2]University of Oxford, UK [3]Brandeburgische Technische Universität Cottbus, Germany
12:00 - 12:15	**PA1-6** **Interfacing Electrocatalysts with Photo-responsive Materials for Water Splitting and Solar Fuels** **K. S. Joya**[1,2], K. Takanabe[2] [1]Leiden University, The Netherlands [2]King Abdullah University of Science and Technology, Saudi Arabia	**Abstract Withdrawn**

Parallel Sessions — Tuesday 29 July 2014 10:30 - 12:15

Time	**C1 — CO_2 Reduction** Chair: Matthew Kanan (Stanford University, USA) Room: Berlin C	**PM2 — PEC Materials** Chair: Shane Ardo (UC Irvine, USA) Room: Salon 7
10:30 - 10:45	**C1-1 (keynote)** **Electrocatalytic Reduction of Carbon Dioxide** K. J. P. Schouten, R. Kortlever, J. Shen, F. Calle-Vallejo, **M. T. M. Koper** Leiden University, The Netherlands	**PM2-1** **Engineering of Redox Interfaces for Enhanced Photo(electro)catalysis** **R. Beranek**, M. Bledowski, S. Neubert, L. Wang, P. Pulisova Ruhr-University Bochum, Germany
10:45 - 11:00		**PM2-2** **Photoelectrochemical Interface Engineering of Silicon Based Nanoemitter Devices for Light-Assisted Evolution of Hydrogen** **B. Bouabadi**[1,2], M. Lublow[2], A. Fischer[2], T. Schedel-Niedrig[3], H.-J. Lewerenz[4], M. Aggour[1] [1]Ibn Tofail University, Morocco [2]Technical University Berlin, Germany [3]Helmholtz-Zentrum Berlin, Germany [4]JCAP, California Institute of Technology, USA
11:00 - 11:15	**C1-2** **Multi-metal Oxide Based Electrocatalysts for CO_2 Conversion to High Energy Carrier Fuels** **S. Rasul**, D. Masih, K. Takanabe King Abdullah University of Science and Technology, Saudi Arabia	**PM2-3** **Oxygen Bubble Growth from Nanorod Array Photoelectrode for Water Splitting** **X. W. Hu**, Y. C. Wang, L. J. Guo Xi'an Jiaotong University, China
11:15 - 11:30	**C1-3** **Solar CO_2 Reduction using H_2O by Semiconductor/Metal-Complex Hybrid Photocatalyst** **T. Arai**[1,2], S. Sato[1,2], T. Kajino[1,2], T. Morikawa[1,2] [1]Toyota Central R&D Labs., Inc., Japan [2]JST, ACT-C, Japan	**PM2-4** **(Photo)electrochemical Protocol for the Determination of the Oxygen Evolution Reaction Faradaic Efficiency using Illuminated Photoanodes** **D. Monllor-Satoca**, C. Fàbrega, T. Andreu, J. R. Morante IREC, Catalonian Institute for Energy Research, Spain
11:30 - 11:45	**C1-4** **GaP/TiO_2 Composite Photocatalyst for CO_2 Reduction in Gas-Solid Regime under Simulated Solar Light Irradiation** G. Marcì, **E. I. García-López**, L. Palmisano Università di Palermo, Italy	**PM2-5** **Electrochemical Induced Sol-Gel Deposition of ZnO Films at Pt-nanoparticles Modified FTO Surfaces for Photoelectrocatalytic Energy Conversion** **R. Gutkowski**, K. Sloizberg, W. Schuhmann Ruhr-University Bochum, Germany
11:45 - 12:00	**C1-5** **Reduction of Carbon Dioxide using Cu_2O Photocathodes** **M. Schreier**, S. D. Tilley, M. Grätzel EPFL, Switzerland	**PM2-6** **Formation of Conductive Tin (IV) Oxide Films by (Ultrasonic-)Spray Pyrolysis** **M. Fleisch**[1], S. Baruth[1], S. Wolter[2], D. W. Bahnemann[1] [1]Leibniz Universität Hannover, Germany [2]Institut für Solarenergieforschung GmbH, Germany
12:00 - 12:15	**C1-6** **Photocatalytic Reduction of CO_2 over Brookite TiO_2 or Nanocomposite Photocatalysts Composed of g-C_3N_4 and WO_3 without Sacrificial Reagents** **T. Ohno**[1,2,3], N. Murakami[1] [1]Kyushu Institute of Technology, Japan [2]JST, PRESTO, Japan, [3]JST, ACT-C, Japan	**PM2-7** **Photo-electrochemical Properties of WO_3 Particulate Layers** **M. Zlámal**, J. Krýsa Institute of Chemical Technology Prague, Czech Republic

Parallel Sessions — Tuesday 29 July 2014 14:30 - 16:00

Time	**PA2 — Water Splitting Photoanodes** Chair: Radim Beranek (Ruhr Univ. Bochum, Germany) Room: Maritim	**D4 — DSSC Scaffolds** Chair: Abdelkrim Chemseddine (HZB, Germany) Room: Berlin B
14:30 - 14:45	**PA2-1 (keynote)** **Observation and Alterations of Surface States on Hematite Photoelectrodes** **D. Wang**[1], C. Du[1], M. Zhang[2], J.-W. Jang[1], Y. Liu[2], G.-Y. Liu[2] [1]Boston College, USA [2]University of California Davis, USA	**D4-1** **Charge Transport in Dye Sensitized Solar Cells Based on Submicrospheres** **S. Dai**[1,2], Y. Ding[2], L. Hu[2] [1]North China Electric Power University, China [2]Chinese Academy of Sciences, China
14:45 - 15:00		**D4-2** **Low-Temperature Fabrication of TiO_2 Electrodes for Highly Efficient and Stable Flexible DSSCs** **H. Lee**[1,3], D. Hwang[2], S. M. Jo[1], D. Kim[2], Y. Seo[3], D. Y. Kim[1] [1]Korea Institute of Science and Technology, Korea [2]Yonsei University, Korea [3]Seoul National University, Korea
15:00 - 15:15	**PA2-2** **Intensity Modulated Photocurrent Spectroscopy Demonstrates Genuine Catalysis of Water Oxidation on Hematite Photoanodes by Surface Sn-doping** **H. K. Dunn**[1], J. M. Feckl[1], A. Müller[1], D. Fattakhova-Rohlfing[1], C. Scheu[1], L. Peter[2], T. Bein[1] [1]Ludwig-Maximilians-Universität München, Germany [2]University of Bath, UK	**D4-3** **Nano-architecture of Plate-shaped TiO2 Designed for Harvesting Wide Range of Solar Spectrum by Dye-Sensitized Solar Cells** M. M. Maitani, **Y. Wada** Tokyo Institute of Technology, Japan
15:15 - 15:30	**PA2-3** **Kinetic Competition at the Hematite/Electrolyte Interface during Water Oxidation** **F. Le Formal**, S. R. Pendlebury, J. R. Durrant Imperial College London, UK	**D4-4** **Novel TiO2/Graphene Composite Photoanode for Dye-Sensitized Solar Cells** **D. Song**, D. H. Lee, W. Cho, W. I. Park, Y. S. Kang Hanyang University, Kora
15:30 - 15:45	**PA2-4** **Operando Photoelectrochemical Diagnosis of Iron Oxide (α-Fe_2O_3) Photoelectrodes for Water Splitting** **H. Dotan**[1], N. Mathews[2], T. Hisatomi[2], M. Grätzel[2], A. Rothschild[1] [1]Technion, Israel [2]EPFL, Switzerland	**D4-5** **Transparent Conducting Aerogels for Dye-Sensitized Solar Cells** J. P. C. Baena, **A. G. Agrios** University of Connecticut, USA
15:45 - 16:00	**PA2-5** **Influence of Oxygen Plasma Treatment on the Electronic Structure and Photo-Electorchemical Properties of Iron Oxide Films for Solar Water Splitting Photoanodes** **Y. Hu**[1,2], F. Boudoire[1,3], I. Hermann-Geppert[4,5], P. Bogdanoff[6], G. Fortunato[1], M. Grätzel[2], A. Braun[1] [1]EMPA, Switzerland [2]EPFL, Switzerland [3]University of Basel, Switzerland [4]Helmholtz-Zentrum Geesthacht, Germany [5]Helmut-Schmidt University, Germany [6]Helmholtz-Zentrum Berlin, Germany	**Abstract Withdrawn**

Parallel Sessions — Tuesday 29 July 2014 14:30 - 16:00

Time	**C2 — CO_2 Reduction** Chair: Osamu Ishitani (Tokyo Insitute of Technology, Japan) Room: Berlin C	**P4 — Photocatalysis** Chair: Elena Selli (University of Milan, Italy) Room: Salon 7
14:30 - 14:45	**C2-1 (keynote)** **Recycling CO_2** **M. Kanan** Stanford University, USA	**P4-1** **Design and Construction of Surface/Interface Structure of Ag_3PO_4 Photocatalyst for Enhanced Visible Light Activity** **J. Ye**[1,2], J. Guo1, Y. Bi[3], D. J. Martin[4], J. Tang[4], S. Ouyany[2,1], T. Kako[1], N. Umezawa[1,2] [1]National Institute for Materials Science, Japan [2]Tianjin University, China [3]Lanzhou Institute of Chemical Physics, China [4]University College London, UK
14:45 - 15:00		**P4-2** **Spacial Separation of Reduction and Oxidation Reaction Sites on WO_3 Particle** **Y. Miseki**, K. Fuku, T. Funaki, H. Kusama, N. Onozawa, Y. Konishi, O. Kitao, K. Sayama National Institute of Advanced Industrial Science and Technology (AIST), Japan
15:00 - 15:15	**C2-2** **Reducing CO_2 to Formate with High Rates and Minimal Overpotential** **X. Min**, M. Kanan Stanford University, USA	**P4-3** **Atomic-scale Surface Local Structure Dependence of Reaction Process of Photogenerated Hole on TiO_2 (Rutile) Single Crystal Electrode in Water** **A. Imanishi**[1], M. Kadono[1], E. Tusji[2], K.-I. Fukui[1] [1]Osaka University, Japan [2]Hokkaido University, Japan
15:15 - 15:30	**C2-3** **Photocatalyzed Conversion of CO_2 to CH_4: An Excited-State Acid-Base Mechanism** E. Look, **H. D. Gafney** City University of New York, USA	**P4-4** **Optimized Photoactive Coatings Prepared with Functionalized TiO2** **Y. Treekamol**[1], M. Schieda[1], I. Herrmann-Geppert[1,2], T. Klassen[1,2] [1]Helmholtz-Zentrum Geesthacht, Germany [2]Helmut-Schmidt-Universität, Germany
15:30 - 15:45	**C2-4** **Study of the Active Reactant in the Electrochemical Reduction of CO_2 in Bicarbonate Aqueous Solutions** **H. Zhong**[1], K. Fujii[1], Y. Nakano[1], F. Jin[2] [1]The University of Tokyo, Japan [2]Shanghai Jiao Tong University, China	**P4-5** **Solar-light Photocatalysis: Surface-Oxidized Crystalline TiOx on Ag/TiO2** K. Fujiwara, **S. E. Pratsinis** ETH Zurich, Switzerland
15:45 - 16:00	**Abstract Withdrawn**	**P4-6** **Influence of Fe Content on Visible- Light Photoactivity of Bi-based Pyrochlores** **M. Bencina**, M. Fanetti, M. Valant University of Nova Gorica, Slovenia

Parallel Sessions — Tuesday 29 July 2014 16:30 - 18:00

Time	**PA3 — Water Splitting Photoanodes** Chair: Shannon W. Boettcher (University of Oregon, USA) Room: Maritim	**V2 — Perovskite Solar Cells** Chair: Marcus Bär (HZB, Germany) Room: Berlin B
16:30 - 16:45	**PA3-1 (keynote)** **Photoelectrochemical Energy Conversion: Where Have We Been and Where Should We Go?** **B. Parkinson** University of Wyoming, USA	**V2-1** **Peculiarities of $MAPbI_3$-Perovskite Solar Cells** **T. Moehl**[1], A. Dualeh[1], G. Gregori[2], T.-Y. Yang[2], J. Maier[2], M. Grätzel[1] [1]EPFL, Switzerland [2]Max-Planck-Institute for Solid-State Research, Germany
16:45 - 17:00		**V2-2** **Stability of Organo-Metal Perovskite Solar Cells** C. H. Law, C. Jellett, **X. Li**, P. Barnes, J. Durrant, B. O'Regan Imperial College London, UK
17:00 - 17:15	**PA3-2** **Mo-doped $BiVO_4$ Photoanodes for Water Splitting, Deposited by Reactive Magnetron Cosputtering** H. Gong[1,2], N. Freudenberg[2], M. Nie[2], **K. Ellmer**[2], R. van de Krol[2] [1]Jinan University, China [2]Helmholtz-Zentrum Berlin, Germany	**V2-3** **On the I-V Hysteresis of $CH_3NH_3PbI_3$ Perovskite Solar Cell** **H.-S. Kim**, N.-G. Park Sungkyunkwan University, Korea
17:15 - 17:30	**PA3-3** **Towards the Mechanism of Photocorrosion of Bismuth Vanadate Thin Films** **F. M. Toma**, I. D. Sharp Joint Center for Artificial Photosynthesis, USA Lawrence Berkeley National Laboratory, USA	**V2-4** **Hysteresis and Mesostability in Perovskite Solar Cells** C. Jellett[1], C. H. Law[1], J. Yao[1], A. Leguy[1], Joao Cabral[1], V. G. Sakai[2], X. Li[1], J. Nelson[1], B. C. O'Regan[1], **P. R. F. Barnes**[1] [1]Imperial College London, UK [2]ISIS Facility, Rutherford Appleton Laboratory, UK
17:30 - 17:45	**PA3-4** **Improvement of Water Oxidation Efficiency of the WO_3 Photoanode through Surface Modification with Polioxometalate Species** **M. Sarnowska**, R. Solarska, M. Dolata, J. Augustyński University of Warsaw, Poland	**V2-5** **Effect of Indium Composition Ratio on the Properties of Solution-Processed InGaZnO Thin Film for Perovskite Solar Cell Applications** **Z. Yao**[1], Y. Zhang[1], K. Koumoto[2], J. Li[3,1], H. Lin[1] [1]Tsinghua University, China [2]Nagoya University, Japan [3]Hainan University, China
17:45 - 18:00	**PA3-5** **Three-Dimensional WO_3-Nanohelixes-based Hybridized Photoanodes for Efficient Solar Water Splitting** **I. Y. Choi**[1], X. Shi[2], D. Y. Kim[1], T. H. Jeon[1], W. Choi[1], J. H. Park[2], J. K. Kim[1] 1Pohang University of Science and Technology, Korea 2Sungkyunkwan University, Korea	**Abstract Withdrawn**

Parallel Sessions — Tuesday 29 July 2014 16:30 - 18:00

Time	D5 — DSSC Scaffolds Chair: Pawel Kulesza (University of Warsaw, Poland) Room: Berlin C	B1 — Biomimetics Chair: Leif Hammarström (Uppsala University, Sweden) Room: Salon 7
16:30 - 16:45	**D5-1** **Novel Strategy for Highly Efficient Zn_2SnO_4 (Zinc Stannate) Based Light Harvesting Device** **D. Hwang**[1,2], H. Lee[3], S. M. Jo[1], Y. Seo[3], D. Kim[2], D. Y. Kim[1] [1]Korea Institute of Science and Technology, Korea [2]Yonsei University, Korea [3]Seoul National University, Korea	**B1-1** **Light-Driven Proton Pumps as Mimics for Natural Photosynthesis** C. D. Sanborn, **S. Ardo** University of California Irvine, USA
16:45 - 17:00	**D5-2** **Experimental Optimization for High-Efficiency Dye-Sensitized Solar Cells** **X. Fang**[1], S. Dai[1,2] [1]Chinese Academy of Sciences, China [2]North China Electric Power University, China	**B1-2** **Photoelectrochemical Biofuel Cell with the Carbon Dioxide Conversion Function Consisting of Thylakoid Membrane from Algae and Enzyme Immobilized Electrodes** **Y. Amao**[1,2], N. Shuto[3], A. Tadokoro[3], M. Nakamura[3] [1]Osaka City University, Japan [2]Japan Science and Technology Agency, Japan [3]Oita University, Japan
17:00 - 17:15	**D5-3** **Pore Surface Coverage by the Hole Transporting Materials spiro-OMeTAD and P3HT within Nanocrystalline TiO_2 Films** **Y. Fang**[1,2], D. Moia[2], X. Li[2], U. Cappel[2], T. Wu[1], J. Nelson[2], B. O'Regan[2], P. R. F. Barnes[2] [1]Zhejiang University, China [2]Imperial College London, UK	**B1-3** **Photocurrent Generated by Photosystem II Adsorbed on a Nanostructured Titanium Dioxide/Indium Tin Oxide Electrode** **K. Brinkert**, A. W. Rutherford, A. Fantuzzi Imperial College London, UK
17:15 - 17:30	**D5-4** **Nanostructured ZnO, New Dyes and Redox Couples for DSCs** **G. Oskam**[1], E. Canto[1], N. Gómez[1], J. Idígoras[2], J. A. Anta[2], A. Sastre[3], F. Fernández[3], M. Macías[4], A. Borrás[4], A. Barranco[4], A. R. González[4] [1]CINVESTAV-IPN, Mexico [2]Universidad Pablo de Olavide, Spain [3]Universidad Miguel Hernández, Spain [4]CSIC-Universidad de Sevilla, Spain	**B1-4** **Photoelectrochemical Water Oxidation using PSII on Nano-structured Indium-Tin Oxide Electrodes** **J. Z. Zhang**[1], M. Kato[1], Y.-H. Lai[1], A. W. Rutherford[2], E. Reisner[1] [1]University of Cambridge, UK [2]Imperial College London, UK
17:30 - 17:45	**D5-5** **Mesopore Combined Nanotube Based Anode for Dye-Sensitized Solar Cell: High Electron Transport Rate and Large Surface Area** L. Xiao, Y. Zhang, **J. Yao**, S. Dai North China Electric Power University, China	**B1-5** **Bio-hybrid Photoelectrode from Iron Oxide and Algal Protein** **A. Braun**[1], D. K. Bora[1,2], E. C. Constable[2] [1]EMPA, Switzerland [2]University of Basel, Switzerland
17:45 - 18:00	**Abstract Withdrawn**	**B1-6** **Bio-inspired Solar Energy Conversion Based on bR/TiO_2 Nanostructured Photoanodes** N. Naseri[1], **R. Mohammadpour**[1], S. Janfaza[2] [1]Sharif University of Technology, Iran [2]Islamic Azad University, Iran

Parallel Sessions — Wednesday 30 July 2014 10:30 - 12:15

Time	**PA4 — Water Splitting Photoanodes** Chair: Wolfgang Schuhmann (Ruhr Univ Bochum,Germany) Room: Maritim	**V3 — Perovskite Solar Cells** Chair: Gary Hodes (Weizmann Institute of Science, Israel) Room: Berlin B
10:30 - 10:45	**PA4-1** **Graphene as Protective Layer for Silicon in an Aqueous PEC Cell** **A. C. Nielander**, N. S. Lewis California Institute of Technology, USA	**V3-1** **Insights into the Chemical and Electronic Structure of the TiO_2/SnO_2:F Interface — the Backbone of Organometal Halide Perovskite and Dye-Sensitized Solar Cells** **M. Bär**[1], G. Sadoughi[2], E. Handick[1], D. E. Starr[1], M. Gorgoi[1], R. G. Wilks[1], H. J. Snaith[2] [1]Helmholtz-Zentrum Berlin, Germany [2]University of Oxford, UK
10:45 - 11:00	**PA4-2** **Stable Silicon Photoanodes: Atomic Layer Deposited Cobalt Oxide for Sustained Water Oxidation** J. Yang, **I. D. Sharp** Joint Center for Artificial Photosynthesis, LBNL, USA	**V3-2** **Film Morphology Control for High Efficiency Perovskite Solar Cells** **L. Han**, X. Yang, C. Qin, Y. Wu, J. Liu National Institute for Materials Science, Japan
11:00 - 11:15	**PA4-3** **Ir/IrOx-modified Si-based Photoanodes for Efficient Solar Water Oxidation in Acidic Electrolytes** **B. Mei**, B. Seger, T. Pederson, O. Hansen, P. C. K. Vesborg, I. Chorkendorff Technical University of Denmark, Denmark	**V3-3** **Electro and Photoluminescence Analysis of Dye Solar Cells and Mesoporous Perovskite Solar Cells** **S. Mastroianni**[1,2], K. F. Jensen[1], W. Veurman[1], H. Brandt[1], A. Hinsch[1] [1]Fraunhofer ISE, Germany [2]Freiburg Materials Research Centre, Germany
11:15 - 11:30	**PA4-4** **Effects of NiO Co-catalyst for Photocurrent and Surface Stability Improvement of n-type GaN Photoelectrode** **K. Koike**[1], A. Nakamura[1], K. Yamamoto[2], S. Ohara[2], M. Sugiyama[1], Y. Nakano[1], K. Fujii[1] [1]The University of Tokyo, Japan [2]Osaka University, Japan	**V3-4** **The Seed Layer Effect on ZnO Nanorod Based Perovskite Solar Cell** **D.-Y. Son**, K.-H. Bae, N.-G. Park Sungkyunkwan University, Korea
11:30 - 11:45	**PA4-5** **Carrier Transfer Mechanisms for Photoelectrochemical Water Splitting of n-type GaN via Intermediate State and Valence Band Edge** **K. Fujii**[1], K. Koike[1], T. Goto[2], M. Sugiyama[1], Y. Nakano[1] [1]The University of Tokyo, Japan [2]RIKEN Research Cluster for Innovation, Japan	**V3-5** **Low Temperature Processed Perovskite Planar Heterojunction Solar Cells on Polymer Substrates** **Y. Dkhissi**[1], F. Huang[2], R. A. Caruso[1,3], Y.-B. Cheng[2] [1]The University of Melbourne, Australia [2]Monash Unversity, Australia [3]CSIRO Materials Science and Engineering, Australia
11:45 - 12:00	**PA4-6** **Growth and Surface Preparation of Single-domain GaPN Epilayers on Si(100) Studied *in situ* with Optical Spectroscopy during Vapor Phase Epitaxy** **O. Supplie**[1,2], M. M. May[2], H. Stange[2], S. Brückner[2], C. Höhn[2], H.-J. Lewerenz[2,3], T. Hannappel[1,2] [1]Technical University Ilmenau, Germany [2]Helmholtz-Zentrum Berlin, Germany [3]JCAP, California Institute of Technology, USA	**Abstract Withdrawn**
12:00 - 12:15	**PA4-7** **Solar Water Splitting on MnO_x-TaON Photoanodes** **S. S. Gujral**[1], R. Abe[2], L. Spiccia[1] [1]Monash University, Australia [2]Kyoto University, Japan	**Abstract Withdrawn**

Parallel Sessions — Wednesday 30 July 2014 10:30 - 12:15

Time	PM3 — PEC Materials Chair: Jinhua Ye (NIMS, Japan) Room: Berlin C	M1 — Molecular Photosynthesis Chair: Erwin Reisner (Cambridge University, UK) Room: Salon 7
10:30 - 11:00	**PM3-1 (keynote)** **Photocatalytic Overall Water Splitting with Mixed Metal Oxides: Effects of Stoichiometry Optimization and Nanocomposite Formation** **M. Wark**[1,2], P. Wang[2], J. Soldat[2], O. Merka[2], R. Marschall[2,3] [1]Carl-von-Ossietzky University Oldenburg, Germany [2]Ruhr-University Bochum, Germany [3]Justus-Liebig-University Giessen, Germany	**M1-1** **Solar Fuels—From Molecular Catalysts to Functional Devices** **L. Sun**[1,2], M. Wang[2], F. Li[2], Y. Gao[2], L. Duan[1], L. Wang[1] [1]KTH Royal Institute of Technology, Sweden [2]Dalian University of Technology, China
11:00 - 11:15	**PM3-2** **Template-free Synthesis of Ta3N5 Nanorod Arrays for Efficient Photoelectrochemical Water Splitting** **C. Zhen**, G. Liu, H.-M. Cheng Chinese Academy of Sciences, China	**M1-2** **Coupling of a Cobalt-based Water Oxidation Catalyst to a Ruthenium-Photosensitizer** **S. Styring**, H.-Y. Wang, A. Thapper Uppsala University, Sweden
11:15 - 11:30	**PM3-3** **$Ti_{1-x}V_xO_2$ Nanorod Photoanodes for Photoelectrochemical Devices** **A. Parra**[1], T. Andreu[1], D. Monllor-Satoca[1], C. Fábrega[1], J. R. Morante[1,2] [1]IREC, Catalonia Institute for Energy Research, Spain [2]Universitat de Barcelona, Spain	**M1-3** **Polymeric Phthalocyanine Sheets as Possible Electrocatalysts for Water-Splitting** C. Geis, F. Müntze, **D. Schlettwein** Justus-Liebig-University Giessen, Germany
11:30 - 11:45	**PM3-4** **Evaluation of Photochemical Properties of TiO_2, TiO_2-Nb and TiO_2-W Doped Anodized Nanotubes** **D. Regonini**, A. Schmidt, F. Clemens EMPA, Switzerland	**M1-4** **Application of Copper Compounds in Photocatalytic Hydrogen Generation from Water** **N. Rockstroh**, M. Karnahl, S.-P. Luo, E. Mejía, A.-E. Surkus, H. Junge, M. Beller University of Rostock, Germany
11:45 - 12:00	**PM3-5** **How to Dope Rutile Nanoparticles to Absorb Visible Light?** **A. Kuc**[1], W. Li[1], H. Groβmann[2], L. Mädler[2], T. Heine[1] [1]Jacobs University Bremen, Germany [2]Universität Bremen, Germany	**M1-5** **Photocatalytic H2 Production without Noble Metals using Simple Organometallic Models of Fe-Fe Hydrogenases Dispersed in Aqueous Micellar Solution** **F. Gloaguen**, C. Orain, F. Quentel CNRS, Université de Bretage Occidantele, France
12:00 - 12:15	**PM3-6** **N Ion Implanted ZnO Nanorod Arrays: Terraced Band Structure and Enhanced Photoelectrochemical Performance** **S. Shen**, M. Wang, L. Guo Xi'an Jiaotong University, China	**M1-6** **Light-Driven Electron and Energy Transfer in a Photocatalytic Model System** **A. Friedrich**, P. Schwarzbach, E. Mejia, S.-P. Luo, H. Junge, M. Beller, S. Lochbrunner University of Rostock, Germany

Parallel Sessions — Thursday 31 July 2014 10:30 - 12:15

Time	PA5 — Water Splitting Photoanodes Chair: Hiroshi Irie (Yamanashi University, Japan) Room: Maritim	PM4 — PEC Materials Chair: Artur Braun (EMPA, Switzerland) Room: Berlin B
10:30 - 10:45	**PA5-1 (keynote)** **Oxynitrides and Oxysulfides for Photocatalytic and Photoelectrochemical Water Splitting** K. Domen[1,2], **T. Yamada**[1,2] [1]The University of Tokyo, Japan [2]Japan Technological Research Association of Artificial Photosynthetic Chemical Process, Japan	**PM4-1** **Characterization of Thin Film Si Tandem Solar Cells as Novel Photocathodes for Solar Hydrogen Production** **F. Yang**[1], J. Ziegler[1], F. Urbain[2], F. Finger[2], B. Kaiser[1], W. Jaegermann[1] [1]Technische Universität Darmstadt, Germany [2]Forschungszentrum Jülich GmbH, Germany
10:45 - 11:00		**PM4-2** **Surface Engineering of Hydrogenated Amorphous Silicon Carbide Photocathodes for Photoelectrochemical Hydrogen Production** **I. A. Digdaya**, L. Han, T. Buijs, A. H. M. Smets, M. Zeman, B. Dam, W. A. Smith Delft University of Technology, The Netherlands
11:00 - 11:15	**PA5-2** **Artificial Photosynthesis: Towards Efficient Solar-to-H_2 Conversion with Metal Oxide Semiconductors** **S. Giménez**, I. Herraiz-Cardona, M. Haro, F. Fabregat-Santiago, I. Mora-Seró, J. Bisquert Universitat Jaume I, Spain	**PM4-3** **Nanofabrication of Model Photoelectrode Surfaces for Water Splitting** **M. Schieda**[1], I. Herrmann-Geppert[1,2], A. C. Bronneberg[3], D. L. Olynick[4], T. Klassen[1,2] [1]Helmholtz-Zentrum Geesthacht, [2]Helmut-Schmidt-Universität, [3]Helmholtz-Zentrum Berlin, Germany, [4]LBNL, USA
11:15 - 11:30	**PA5-3** **Investigation into Pseudobrookite (Fe_2TiO_5) as Photoanode for Solar Water Splitting** **P. S. Bassi**[1], G. T. Wee[1], T. C. Sum[1], J. Barber[1,2], L. H. Wong[1] [1]Nanyang Technological University, Singapore [2]Imperial College London, UK	**PM4-4** **New 3D Structured Photo Anodes based on Pulsed Laser Deposition of Tungsten Oxide** **C. Fàbrega**[1], S. Murcia[1], D. Monllor-Satoca[1], T. Andreu[1], J. R. Morante[1,2] [1]IREC, Catalonian Institute for Energy Research, Spain [2]University of Barcelona, Spain
11:30 - 11:45	**PA5-4** **Synthetic and Optical Strategies for Maximizing the Photocurrent Performance of Photoanodes for Water Splitting: Rutile Nanorods as a Case Study** **D. Monllor-Satoca**[1], C. Fàbrega[1], C. Ros[1], A. Parra[1], T. Andreu[1], J. R. Morante[1,2] [1]IREC, Catalonian Institute for Energy Research, Spain [2]University of Barcelona, Spain	**PM4-5** **Semiconductor Coatings for the Photo-Induced Water Oxidation** **T. Emmler**[1], H. Gutzmann[2], P. Bogdanoff[3], T. Dittrich[3], N. Németh[2], M. Schieda[1], T. Klassen[1,2], I. Herrmann-Geppert[1,2] [1]Helmholtz-Zentrum Geesthacht, Germany [2]Helmhut-Schmidt-University, Germany [3]Helmholtz-Zentrum Berlin, Germany
11:45 - 12:00	**PA5-5** **Shuttling Charge Transport in CdS-rGO-TiO_2 Donor-Transporter-Acceptor Water Splitting Photoanode** **W. Y. Teoh**, H. Yang City University of Hongkong, Hongkong S. A. R.	**PM4-6** **Flame Made Oxide Heterojunctions for Efficient Charge Separation in Photocatalytic Water Splitting Applications** **H. K. Grossman**[1], T. Frieb[1], S. Schopf[1], Y. H. Ng[2], R. Amal[2], L. Mädler[1] [1]University of Bremen, Germany [2]University of New South Wales, Australia
12:00 - 12:15	**PA5-6** **Light-driven Water Oxidation by Photo-anodes based on Abundant Elements** **M. Wiechen**, L. Spiccia Monash University, Australia	**PM4-7** **Preparation of Solar Water Splitting Photoelectrodes by Deposition of Photoelectrocatalysts Powder with an Automated Micro-dispensing Spraying System** **K. Silozberg**, R. Gutkowski, W. Schuhmann Ruhr-Universität Bochum, Germany

Parallel Sessions — Thursday 31 July 2014 10:30 - 12:15

Time	**H1 — Photocatalytic Reduction** Chair: Elena Selli (University of Milan, Italy) Room: Berlin C	**M2 — Molecular Photosynthesis** Chair: Leif Hammarström (Uppsala University, Sweden) Room: Salon 7
10:30 - 10:45	**H1-1** **Design of Plasmonic Nanocatalysts for Highly Efficient Hydrogen Production from Ammonia Borane under Visible Light Irradiation** H. Cheng[1], K. Fuk[1], T. Kamegawa[1,2], K. Mori[1,2], **H. Yamashita**[1,2] [1]Osaka University, Japan, [2]Kyoto University, Japan	**M2-1 (keynote)** **Photocatalytic H_2 Generation with Molecular Catalysts on Dye-Sensitized Semiconductors** **E. Reisner** University of Cambridge, UK
10:45 - 11:00	**H1-2** **Revealing Structure-Reactivity Relationships in Solar Water Reduction over Plasmonic Photocatalysts by Spectroscopic in situ Techniques** **J. B. Priebe**, J. Radnik, H. Junge, M. Beller, A. Brückner Leibniz-Institut für Katalyse e. V., Germany	
11:00 - 11:15	**H1-3** **Photocatalytic Hydrogen Production: The Effect of Synergism and Plasmonic Properties on the Reaction** K. A. Wahab[1], Y. Al Salik[1], M. Al Oufi[1], S. Bashir[1], H. Katsiev[1], G. I. N. Waterhouse[2], J. Llorca[3], **H. Idriss**[1] [1] KAUST, Saudi Arabia [2]University of Auckland, New Zealand [3]Technical University of Catalonia, Barcelona	**M2-2** **The Crucial Role of the Bridging Ligand in Ru/Pd Complexes for Long-lived Charge Separation and Photocatalytic Activity** Q. Pan1, D. Sharma[1], F. Mecozzi[2], W. R. Browne[2], J. G. Vos[3], J. L. Herek[1], **A. Huijser**[1] [1]University of Twente, The Netherlands [2]University of Groningen, The Netherlands [3]Dublin City University, Ireland
11:15 - 11:30	**H1-4** **Photocatalytic Hydrogen Evolution over La-doped NaTaO3 Particles: An Isotopic Study** **I. Ivanova**[1], T. Kandiel[2], D. Bahnemann[1] [1]Leibiniz University Hannover, Germany [2]Sohag University, Egypt	**M2-3** **Photochemistry of Transition Metal Dyes-Excited State Calculations Beyond the Franck-Condon Region** **L. Fredin**, P. Persson Lund University, Sweden
11:30 - 11:45	**H1-5** **Exploring the Origin of Enhanced Activity and Reaction Pathways for Photocatalytic Hydrogen Production on Au/B-TiO_2 Catalysts** **F. Wang**, Y. Jiang, R. Amal The University of New South Wales, Australia	**M2-4** **Photoinduced Water Oxidation by a Dinuclear Ru Catalyst: Towards a Photoanode** **S. Berardi**[1], L. Francàs[1], S. Maji[1], S. Neudeck[2], F. Meyer[2], A. Llobet[1] [1]Institute of Chemical Research of Catalonia, Spain [2]Georg-August-Universität Göttingen, Germany
11:45 - 12:00	**H1-6** **Constructing Metallic/Semiconductor TaB2/Ta2O5 Core/Shell Heterostructure for Photocatalytic Hydrogen Evolution** **Y. Yang**[1,2], C. Sun[3], L. Wang[4], Z. Liu[1], G. Liu[1], X. Ma[1], H. Cheng[1] [1]Chinese Academy of Sciences, China [2]University of Science and Technology of China, China [3]Monash University, Australia [4]The University of Queensland, Australia	**M2-5** **Efficient Ru/Rh Polypyridyl Photocatalysts for Visible-light-driven Hydrogen Production in Fully Aqueous Solution** **J. Fortage**[1], T. Stoll[1], M. Gennari[1], C. E. Castillo[1], M. Rebarz[2], M. Sliwa[2], O. Poizat[2], F. Odobel[3], A. Deronzier[1], M.-N. Collomb[1] [1]Université Joseph Fourier Grenoble I, France [2]Université Lille I Sciences et Technologies, France [3]Université de Nantes, France
12:00 - 12:15	**H1-7** **PEDOT Protected Quantum Dots: a Newly Designed Artificial Leaf for Visible Light Driven Hydrogen Production** **N. Srinivasan**[1], D. Atarashi[1], E. Sakai[1], M. Miyauchi[1,2] [1]Tokyo Institute of Technology, Japan [2]Japan Science and Technology Agency, Japan	**Abstract Withdrawn**

Parallel Sessions — Thursday 31 July 2014 14:30 - 16:00

Time	**O1 — OER/HER Catalysis** Chair: Holger Dau (FU Berlin, Germany) Room: Maritim	**PC1 — Water Splitting Photocathodes** Chair: Wilson Smith (TU Delft, The Netherlands) Room: Berlin B
14:30 - 14:45	**O1-1 (keynote)** **Electrocatalysis at the Atomic Scale** **J. Rossmeisl** Technical University of Denmark, Denmark	**PC1-1** **Highly Efficient and Stable Transparent Cuprous Oxide Photocathodes for Photoelectrochemical Water Splitting Cells** **P. Dias**[1], M. Mayer[2], J. Azevedo[1], L. Andrade[1], A. Mendes[1], M. Grätzel[2], S. D. Tilley[2] [1]University of Porto, Portugal [2]EPFL, Switzerland
14:45 - 15:00		**PC1-2** **Advances in Combinatorial Approach in the Development of CuNb-ox based Photocathodes for Solar Water Splitting** **K. Skorupska**, B. Parkinson University of Wyoming, USA
15:00 - 15:15	**O1-2** **Regulating Proton-Coupled Electron Transfer for Efficient Water Oxidation by Mn Oxides under Neutral Conditions** **A. Yamaguchi**[1], K. Hashimoto[1], R. Nakamura[2] [1]The University of Tokyo, Japan [2]RIKEN CSRS, Japan	**PC1-3** **A Novel Copper Oxide-Based Heterojunction as Photocathode for the Reduction of Aqueous Protons Under Visible Irradiation** **H. S. Park**, E. Reisner University of Cambridge, UK
15:15 - 15:30	**O1-3** **New Direction in the Synthesis and Application of Amorphous Materials for the Energy Conversion and Storage** **A. Indra**[1], P. W. Menezes[1], N. Ranjbar[1], A. Bergmann[1], I. Zaharieva[2], P. Strasser[1], H. Dau[2], M. Driess[1] [1]Technische Universität Berlin, Germany [2]Freie Universität Berlin, Germany	**PC1-4** **A Novel Cu_2O-based Ternary Thin Film Photocathode for Water Splitting** **P. Wang**, Y. H. Ng, R. Amal The University of New South Wales, Australia
15:30 - 15:45	**O1-4** **Layered Manganese Oxides as Anode Materials for "Artificial Leaves"** **P. Kurz** Albert-Ludwigs-Universität Freiburg, Germany	**PC1-5** **Photoelectrocatalytic Devices Based on NiO Semiconductor for the Production of Solar Fuels** **F. Légalite**[1], C. Castillo[2], T. Stoll[2], Y. Pellegrin[1], E. Blart[1], J. Fortage[2], M.-N. Collomb[2], A. Deronzier[2], F. Odobel[1] [1]Université de Nantes, France [2]Université Joseph Fourier Grenoble, France
15:45 - 16:00	**O1-5** **On the Behavior of MnO_x, γ-MnO_2, α-Mn_2O_3, and Mn_3O_4 Thin Films as Electrocatalysts for the Oxygen Evolution Reaction** A. Kratzig, A. Ramirez, P. Hillebrand, D. Stellmach, P. Bogdanoff, K. Ellmer, **S. Fiechter** Helmholtz-Zentrum Berlin, Germany	**PC1-6** **Stepwise Reductive Photodeposition of Copper and Chromia on Gallium Oxide Applied in Photocatalytic Water Splitting to Elucidate the Role of the Co-catalysts** G. W. Busser[1], B. Mei[1], A. Pougin[1], J. Strunk[1], R. Gutkowski[1], W. Schuhmann[1], M. Willinger[2], R. Schlögl[2], **M. Muhler**[1] [1]Ruhr-University Bochum, Germany [2]Fritz-Haber-Institut, Germany

Parallel Sessions — Thursday 31 July 2014 14:30 - 16:00

Time	**H2 — Photocatalytic Reduction** Chair: Jinhua Ye (NIMS, Japan) Room: Berlin C	**E1 — Photoinduced Electron Transfer** Chair: Hiroshi Imahori (Kyoto University, Japan) Room: Salon 7
14:30 - 14:45	**H2-1** **Crystalline Polymers as Tunable Scaffolds for Photocatalytic Hydrogen Production** K. Schwinghammer[1,2], L. Stegbauer[1,2], **B. V. Lotsch**[1,2] [1]Max Planck Institute for Solid State Research, Germany [2]Ludwig-Maximilians-Universität München, Germany	**E1-1 (keynote)** **Semiconductor-Electrocatalyst Contacts: Theory, Experiment, and Applications to Solar Water Photoelectrolysis** **S. W. Boettcher**, F. Lin, T. J. Mills University of Oregon, USA
14:45 - 15:00	**H2-2** **Molecular Heptazine Compounds as Model Photocatalytic Systems for the Elucidation of Structure-Activity Relationships in Graphitic Carbon Nitride** **V. W. Lau**[1], B. V. Lotsch[1,2] [1]Max Planck Institute for Solid State Research, Germany [2]Ludwig-Maximilians-Universität München, Germany	
15:00 - 15:15	**H2-3** **Pt-g-C_3N_4 as Efficient Hydrogen Evolution Catalyst under Visible Light** **F. Fina**, J. T. S. Irvine University of St Andrews, UK	**E1-2** **Charge Separation in Hybrid Systems for Light Driven H_2 Production** **A. Reynal**[1], F. Lakadamyali[2], M. A. Gross[2], N. Muresan[2], E. Reisner[2], J. Durrant[1] [1]Imperial College London, UK [2]University of Cambridge, UK
15:15 - 15:30	**H2-4** **Mesoporous Graphitic Carbon Nitride and Carbon-TiO_2 Hybrid Composite Photocatalysts with Enhanced Photocatalytic Activity under Visible Light Irradiation** Y. Wu, L. Shi, **C. Wang** Chinese Academy of Science, China	**E1-3** **Charge Generation and Transport in Nanocrystal Water Splitting Photocatalysts — Insights from Surface Photovoltage Spectroscopy** **F. Osterloh**, J. Zhao University of California Davis, USA
15:30 - 15:45	**H2-5** **Hydrogen Evolution from Dye Solution on Pt Imbedded NH2-MIL-101(Cr) under Visible Light Irradiation** M. Wen[1], K. Mori[1,2], **H. Yamashita**[1,2] [1]Osaka University, Japan [2]Kyoto University, Japan	**E1-4** ***Operando* Observation of Photo-induced Electron Holes during PEC Water Splitting** **A. Braun**[1], D. K. Bora[1], J. Guo[2] [1]EMPA, Switzerland [2]Advanced Light Source, USA
15:45 - 16:00	**H2-6** **Solar Hydrogen from an Aqueous, Noble-Metal-Free Hybrid System in a Continuous-Sampling Reaction System** X. Li, A. J. Ward, A. F. Masters, **T. Maschmeyer** The University of Sydney, Australia	**E1-5** **Visible-Light Photocatalytic Water Oxidation Induced by Au Interband transitions** **L. Liu**, N. Umezawa, J. Ye, H. Abe National Institute for Materials Science, Japan

Parallel Sessions — Thursday 31 July 2014 16:30 - 18:00

Time	**O2 — OER/HER Catalysis** Chair: Jan Rossmeisl (DTU, Denmark) Room: Maritim	**PC2 — Water Splitting Photocathodes** Chair: Wolfram Jaegermann (TU Darmstadt, Germany) Room: Berlin B
16:30 - 16:45	**O2-1** **Understanding Interactions Between Metals and Metal Oxides for the Oxygen Evolution Reaction** **L. Seitz**[1], C.-J. Chung[1], J. D. Benck[1], Y. Gorlin[2], D. Nordlund[3], D. Sokaras[3], B. M. Clemens[1], T.F. Jaramillo[1] [1]Stanford University, USA [2]TU München, Germany [3]SLAC National Accelerator Laboratory, USA	**PC2-1 (keynote)** **Protective Coatings for Water-Splitting Photoelectrodes** **P. C. K. Vesborg**[1], B. Seger[1], A. B. Laursen[2], I. Chorkendorff[1] [1]Technical University of Denmark, Denmark [2]Rutgers-State University of New Jersey, USA
16:45 - 17:00	**O2-2** **Electrochemical Water Oxidation on Nickel-based Double Hydroxides** **O. Diaz-Morales**, M. T. M. Koper Leiden University, The Netherlands	
17:00 - 17:15	**O2-3** **In-situ Spectroelectrochemical Study of Ni and Co Based Oxygen Evolution Catalysts** **B. Trześniewski**[1], O. Diaz-Morales[2], F. F. Abdi[3], M. Koper[2], W. Haije[1], B. Dam[1], W. Smith[1] [1]Delft University of Technology, The Netherlands [2]Leiden University, The Netherlands [3]Helmholtz-Zentrum Berlin, Germany	**PC2-2** **Passivation of p-InP Photocathode Surfaces** **T.G. Deutsch**[1], E. Brahm[2], H. Döscher[1,3], J. A. Turner[1] [1]National Renewable Energy Laboratory, USA [2]University of California Berkeley, USA [3]Technische Universität Ilmenau, Germany
17:15 - 17:30	**O2-4** **Water Oxidation: Structural and Functional Parallels Between the Biological Active Site and a Synthetic Manganese-Oxide Catalyst** **I. Zaharieva**, P. Chernev, D. Gonzalez-Flores, H. Dau Freie Universität Berlin, Germany	**PC2-3** **P-type (In,Ga)N Nanowires as Photocathodes for Solar Water Splitting** J. Kamimura[1], P. Bogdanoff[2], **L. Geelhaar**[1], S. Fiechter[2], H. Riechert[1] [1]Paul-Drude-Institut für Festkörperelectronik, Germany [2]Helmholtz-Zentrum Berlin, Germany
17:30 - 17:45	**O2-5** **In-situ Synchrotron X-ray Spectroscopic Techniques for the Study on Catalyst for Oxygen Evolution Reaction** **L. Li**[1,2], H. G. S. Casalongue[1,2], D. Friebel[1,2], S. Kaya[1,2], M. L. Ng[1], H. Ogasawara[1], A. Nilsson[1,2] [1]SLAC National Accelerator Laboratory, USA [2]Joint Center for Artificial Photosynthesis, USA	**PC2-4** **p-GaP Photocathodes for Solar Water Splitting: Increasing Photovoltage and Stability by Surface Modificaiton** **M. Malizia**, B. Seger, I. Chorkendorff, P. C. K. Vesborg Technical University of Denmark, Denmark
17:45 - 18:00	**O2-6** **On the Relationship Between Surface State and Activity of Cobalt and Manganese Oxides Towards the Oxygen Evolution in Photoelectrochemical Devices** **P. Hillebrand**, A. Ramiréz-Caro, P. Bogdanoff, S. Fiechter Helmholtz-Zentrum Berlin, Germany	**PC2-5** **Photoelectrocatalytic Solar Hydrogen and Oxygen Evolution by Novel Thin-Film Composites** A. Azarpira[1], M. Lublow[2], K. Olech[1], J. Pfrommer[2], A. Steigert[1], C. Merschjann[1], F. Yang[1], M. Lücke[1], A. Fischer[2], M. Driess[2], **T. Schedel-Niedrig**[1] [1]Helmholtz-Zentrum Berlin, Germany [2]Technische Universität Berlin, Germany

Parallel Sessions — Thursday 31 July 2014 16:30 - 18:00

Time	**H3 — Photocatalytic Reduction** Chair: Detlef Bahnemann (L. Univ. Hannover, Germany) Room: Berlin C	**E2 — Photoinduced Electron Transfer** Chair: Rainer Eichberger (HZB, Germany) Room: Salon 7
16:30 - 16:45	**H3-1** **Photocatalytic Hydrogen Production with Noble Metal-Modified F-doped TiO_2** **E. Selli**, M. V. Dozzi, G. L. Chiarello Università degli Studi di Milano, Italy	**E2-1** **Quantum Photoelectrochemistry of Nanoscale Solar Energy Conversion Process** **P. Persson**, M. Knitter, S. Hedström, L. A. Fredin Lund University, Sweden
16:45 - 17:00	**H3-2** **Understanding and Improving Photocatalysts Based on Isolated Titanate Species on Silica** B. Mei, A. Pougin, **J. Strunk** Ruhr-University Bochum, Germany	**E2-2** **Photo-induced Charge Separation Between Dye Molecules Adsorbed to Aluminum Oxide Surfaces** **U. B. Cappel**, S. A. Haque, D. Moia, P. R. F. Barnes Imperial College London, UK
17:00 - 17:15	**H3-3** **Robust H_2 Generation Based on Semiconductor Quantum Dots Sensitization of Titania under Visible Light** **G. Zhang**[1,2], H.-I. Kim[1], J. T. S. Irvine[2], W. Choi[1] [1]Pohang University of Science and Technology, Korea [2]University of St Andrews, UK	**E2-3** **Ultrafast Spectroscopy and Numerical Simulation of Inhomogeneous Electron Injection Dynamics in Dye-Sensitized Solar Cells** **A. Furube**[1,2], K. Sunahara[1,2], H. Matsuzaki[1] [1]National Institute of Advanced Industrial Science and Technology, Japan [2]University of Tsukuba, Japan
17:15 - 17:30	**H3-4** **Cu(II) Pre-Grafted Pt/TiO_2 for Photocatalytic H_2 Production** **M. V. Dozzi**, G. L. Chiarello, E. Selli Università degli Studi di Milano, Italy	**E2-4** **Managing Holes in Dye Sensitized Oxide Nanostructures** **D. Moia**[1], T. Leijtens[2], V. Vaissier[2], J. Nelson[1], H. J. Snaith[2], P. R. F. Barnes[1] [1]Imperial College London, UK [2]University of Oxford, UK
17:30 - 17:45	**H3-5** **Photocatalytic H_2 Production over Pt/TiO_2 Photocatalysts: from Citric Acid-Water, and Triethanolamine-Water Mixtures: a Comparative Study** **A. F. Alkaim**[1,2], T. A. Kandiel[3], R. Dillert[1], D. W. Bahnemann[1] [1]Leibniz Universität Hannover, Germany [2]Babylon University, Iraq [3]Sohag University, Egypt	**E2-5** **A New Way to Explore Photoelectron-induced Processes in DSSC's** **R. Cisneros**[1,2], M. Beley[2], F. Lapicque[2] [1]iS2-SAS, France [2]University of Lorraine, France
17:45 - 18:00	**H3-6** **Visible-light Active Black TiO_2-Ag/TiO_x Particles** **K. Fujiwara**[1], Y. Deligiannakis[1,2], C. G. Skoutelis[2], S. E. Pratsinis[1] [1]ETH Zurich, Switzerland [2]University of Patras, Greece	**E2-6** **Manipulation of Electron Transfer Dynamics in Zinc Phthalocyanine Sensitized TiO2 Nanoparticles by Modification of the Anchoring Ligand** D. Sharma[1], G. Steen[1], M. García-Iglesias[2], P. Vázquez[2], T. Torres[2], J. Herek[1], **A. Huijser**[1] [1]University of Twente, The Netherlands [2]Autonoma University of Madrid, Spain

Parallel Sessions — Friday 1 August 2014 10:30 - 12:15

Time	**O3 — OER/HER Catalysis** Chair: Peter Bogdanoff (HZB, Germany) Room: Maritim	**PM5 — Photoactive Materials** Chair: Sebastian Fiechter (HZB, Germany) Room: Berlin B
10:30 - 10:45	**O3-1 (keynote)** **Water Oxidation by Amorphous Transition Metal Oxides: Quasi-molecular Properties and Relation to (initially)Crystalline Catalysts** I. Zaharieva, M. Risch, P. Chernev, E. M. Moreno, D. G. Flores, J. Heidkamp, K. Klingan, R. Mohammadi, C. Pasquini, **H. Dau** Freie Universität Berlin, Germany	**PM5-1** **Photoelectrochemical Water Oxidation on MnO_x Films** **F. Zhou**, C. McDonnell-Worth, L. Spiccia, D. R. Macfarlane Monash University, Australia
10:45 - 11:00		**PM5-2** **Nanostructures of Polar Crystal Classes and Their Applications in Optoelectronics and Beyond** **S. Polarz**, S. Dilger, D. Lehr, M. Gerigk, T. Kollek University of Konstanz, Germany
11:00 - 11:15	**O3-2** **Easy Acess to Bilayer Films for Water Oxidation Catalysis via Reductive Electropolymerization** **A. M. Lapides**[1], D. L. Ashford[1], A. K. Vannucci[1], K. Hanson[2], D. A. Torelli[1], J. L. Templeton[1], T. J. Meyer[1] [1]University of North Carolina at Chapel Hill, USA [2]Florida State University, USA	**PM5-3** **Material Design of Transition Metal Oxide Alloys for Solar Energy Applications** **M. C. Toroker** Technion, Israel
11:15 - 11:30	**O3-3** **Structured MoS_2 Particles as Earth Abundant Catalyst for Hydrogen Evolution** **D. Stellmach,** S. Brunken, P. Bogdanoff, S. Fiechter Helmholtz-Zentrum Berlin, Germany	**PM5-4** **Potentiostatic Reversible Photoelectrochromism in Nanoporous TiO_2 Electrodes Modified with $Ni(OH)_2$** **T. Lana-Villareal**, D. Cibrev, M. Jankulovska, R. Gómez Universitat d'Alcalant, Spain
11:30 - 11:45	**O3-4** **H_2-evolving Cathodes and Photocathodes Based on Functionalized Polymer-Molybdenum Sulfide Nanocomposites** **A. Deronzier**, Y. Lattach, T. Bamine, J. Fortage, J.-C. Moutet Université Joseph Fourier Grenoble, France	**PM5-5** **Nanostructured Visible Light Photocatalytic Systems for Solar Fuel Production** **O. Ola**, M. M. Maroto-Valer Heriot-Watt University, UK
11:45 - 12:00	**O3-5** **Noble-Metal-Free MoS_2/Graphene-CdS System for Efficient Photocatalytic Water Splitting under Visible Light Irradiation** **K. Chang**, Z. Mei, T. Wang, Q. Kang, S. Ouyang, J. Ye National Institute for Materials Science, Japan	**PM5-6** **Sequential Pulse Electrodeposition of $CuInS_2$ Nanoparticles on ZnO Nanorod Thin Films for Visible Light Conversion** **Y. Tang**, Y. H. Ng, J.-H. Yun, R. Amal The University of New South Wales, Australia
12:00 - 12:15	**O3-6** **Core/Shell and Metal Alloy Cocatalysts for Photocatalytic and Photoelectrochemical Water Splitting** **F. Dionigi**[1], I. Chorkendorff[2], P. Strasser[1] [1]Technische Universität Berlin, Germany [2]Technical University of Denmark, Denmark	**PM5-7** **Effect of Counter-Anions during Electrochemical Deposition of ZnO on the Charge Transport Dynamics in Sensitized Solar Cells** **C. Richter**, M. Beu, D. Schlettwein Justus-Liebig-University Gießen, Germany

Parallel Sessions — Friday 1 August 2014 10:30 - 12:15

Time	**H4 — Photocatalytic Reduction** Chair: Jennifer Strunk (Ruhr Univ. Bochum, Germany) Room: Berlin C	**E3 — Photoinduced Electron Transfer** Chair: Thomas Schedel-Niedrig (HZB, Germany) Room: Salon 7
10:30 - 10:45	**H4-1 (keynote)** **Designing Active and Stable Hydrogen Evolution Catalysts and Photocathodes for Solar Hydrogen Production** **J. D. Benck**, J. Kibsgaard, T. R. Hellstern, K. D. Fong, S. C. Lee, R. Sinclair, T. F. Jaramillo Stanford University, USA	**E3-1** **Ultrafast Transient Absorption Studies of Heteroleptic Copper Photosensitizers used in Hydrogen Evolving Systems** **S. Tschierlei**, M. Karnahl, N. Rockstroh, H. Junge, M. Beller, S. Lochbrunner University of Rostock, Germany
10:45 - 11:00		**E3-2** **Hopping Transport of Excited States in Polymeric Carbon Nitride Photocatalysts** **C. Merschjann**[1], S. Tschierlei[1], T. Tyborski[2], A. Thomas[3], T. Schedel-Niedrig[4], S. Lochbrunner[1] [1]Universität Rostock, Germany,[2]Max-Born-Institut für Nichtlineare Optik und Kurzzeitspektroskopie, Germany, [3]Technische Universität Berlin, Germany, [4]Helmholtz-Zentrum Berlin, Germany
11:00 - 11:15	**H4-2** **Specifically Adsorbed Ions Control Energetics and Activity of Nanocrystal Water Splitting Photocatalysts** **F. Osterloh**, R. L. Chamousis University of California Davis, USA	**E3-3** **In situ EPR Spectroscopy — a Powerful Tool for Analyzing Electron Transfer Processes in Heterogeneous Semiconductor Materials** **D. Hollmann**[1], A. Thomas[2], M. Wark[3], A. Brückner[1] [1]Leibniz-Institut für Katalyse e.V., Germany [2]Carl-von-Ossietzky-University Oldenburg, Germany [3]Technische Universität Berlin, Germany
11:15 - 11:30	**H4-3** **Highly Active Cobalt Nanoflakes for Efficient Hydrogen Evolution** **N. Naseri**, M. Qorbani, A. Z. Moshfegh Sharif University of Technology, Iran	**E3-4** **In-plane and Out-of-plane Water-Soluble Metalloporphyrins as Photocatalysts for Utilization of Visible Light** **O. Horváth**[1], Z. Valicsek[1], M. A. Fodor[1], M. Imran[1], M. M. Major[1], G. Grampp[2], A. Wankmüller[2] [1]University of Pannonia, Hungary, [2]Graz University of Technology, Austria
11:30 - 11:45	**H4-4** **Photocatalytic and Electrochemical H_2 Evolution using Tungsten Carbide Nanoparticles Electrocatalysts** **A. T. Garcia-Esparza**[1], D. Cha[1], Y. Ou[2], J. Kubota[2], K. Domen[2], K. Takanabe[1] [1]King Abdullah University of Science and Technology, Saudi Arabia, [2]The University of Tokyo, Japan	**E3-5** **Host-Guest Photoinduced Energy Transfer System Based on Chromophores Encapsulated in Metal-Organic Frameworks** **D. Yan**[1,2] [1]Beijing Normal University, China [2]Beijing University of Chemical Technology, China
11:45 - 12:00	**H4-5** **Quarternary Metal Sulphide Nanocrystals as a Highly Active Photocatalysts for Solar Hydrogen Production** **T. A. Kandiel**[1,2], K. Takanabe[1] [1]King Abdullah University of Science and Technology, Saudi Arabia, [2]Sohag University, Egypt	**E3-6** **Thermodynamic and Kinetic for Heteregenous Photocatalysis Based on Nano-Systems: Mathematical-Physical Analysis and Experimental Discussions** L. Wen, **B. Liu**, X. Zhao, J. Zhou Wuhan University of Technology, China
12:00 - 12:15	**H4-6** **CoSnOx Decorated Graphene Nanohybrid for High-Efficient Photocatalytic Hydrogen Evolution** **G. Lu**, C. Kong Chinese Academy of Sciences, China	**E3-7** **Luminescence of Pristine and Cr-doped $MgAl_2O_4$ Spinel Induced by Hydrogen Chemisorption** **E. S. Artemyeva**[1], A. V. Emeline[1], M. F. Atitar[2] [1]St. Petersburg State University, Russia [2]Leibniz Universität Hannover, Germany

Poster Session — Monday 28 July 2014 18:00-20:00

Molecular and Biomimetic Artificial Photosynthesis

PoM	**1**	**Single-Source Precursor Derived Nanochains of Cobalt Oxide as Highly Efficient Multifunctional Catalyst for Energy Conversion and Storage** P. W. Menezes (Technical University Berlin, Germany)
PoM	**2**	**Synthesis of Amphiphilic Bacteriochlorophyll a Derivatives as Artificial Energy Acceptors in Chlorosomal Lipid Layers of Green Photosynthetic Bacteria** N. Takahashi (Kinki University, Japan)
PoM	**3**	**Efficient Photocatalytic Hydrogen Production in Pure Water from a Cobalt(III) Tetraaza-Macrocyclic Catalyst. Electrochemical Generation of the Low-Valent Co(I) Species and Its Reactivity Toward Proton Reduction** J. Fortage (Université Joseph Fourier Grenoble, France)
PoM	**4**	**A Highly Active Dinuclear Ruthenium Complex for Water Oxidation Catalysis** A. C. Sander (Georg-August Universität Göttingen, Germany)
PoM	**5**	**Electrodeposited Calcium-Manganese Oxides for Water Oxidation Catalysis** D. González-Flores (Freie Universität Berlin, Germany)
PoM	**6**	**Layered Calcium Manganese Oxides as Catalysts for Biomimetic Water-Oxidation** C. E. Frey (Albert-Ludwigs-Universität Freiburg, Germany)
PoM	**7**	**Improving Stability of Conventional Ru Photosystems by Modifying Ligand Architecture for Photocatalytic H_2 Generation** S. Soman (Michigan State University, USA)
PoM	**8**	**The Role of Protons in Amorphous Co-based Oxides for Water Oxidation** C. Pasquini (Freie Universität Berlin, Germany)

Photoelectrochemistry and New Materials

PoM	**9**	**Stable Hole Transfer Twisted Polynuclear Heteroaromatics (PHAs)** T. Moriguchi (Kyushu Institute of Technology, Japan)
PoM	**10**	**Plasmon-Induced Photoelectrochemistry on TiO_2-Au Nanostructured Photoanodes** L. Daccache (Ulm University, Germany)
PoM	**11**	**Preparation of TiO_2 Nano-materials Using Electrospray and Hydrothermal and Their Applications** B. Liu (Wuhan University of Technology, China)
PoM	**12**	**Enhanced Photocurrent on NiCr-oxo-Modified TiO_2 Nanorod Array Electrode for Visible-Light-Driven Water Oxidation** X. Xiang (Beijing University of Chemical Technology, China)
PoM	**13**	**Synthesis and High-Throughput Photoelectrochemical Characterization of Fe-Doped Porous WO_3 Nanostructures** C. Khare (Ruhr-Universität Bochum, Germany)
PoM	**14**	**Deposition and Characterization of Gradient Doped N:Cu_2O Thin Film Photocathodes for Solar Water Splitting** H. Stein (Ruhr-Universität Bochum, Germany)
PoM	**15**	**Hybrid Systems of Molecular Catalysts on Complex Oxides for Water Oxidation** J. Meyer (Institute of Inorganic Chemistry Göttingen, Germany)
PoM	**16**	**In-Line XPS Study of TiO_2 Grown by ALD: Elucidating the Role of the Titanium Oxidation State** A. C. Bronneberg (Helmholtz-Zentrum Berlin, Germany)
PoM	**17**	**Synergistic Effect of Hydrogenation and Sn Doping in Hematite Electrode for Photoelectrochemical Water Oxidation** T. H. Jeon (POSTECH, Korea)
PoM	**18**	**A Molecular Approach to Self-Supported Cobalt Substituted ZnO Materials as Remarkably Stable Electrocatalysts for Water Oxidation** J. Pfrommer (Technical University Berlin, Germany)
PoM	**19**	**Mapping Surface Potentials and Photoexcited Charges on Inorganic Water-Splitting Materials** L. Polak (VU University Amsterdam, The Netherlands)
PoM	**20**	**Photoelectrochemistry and Laser Flash Photolysis Study on $NaTaO_3$** P. E. Mollá (Leibniz Universität Hannover, Germany)
PoM	**21**	**Colloidal Nanocrystal Deposition: An Efficient and Inexpensive Approach to Prepare Hematite Photoanodes for Water Splitting** R. H. Goncalves (Federal University of Sao Carlos, Brazil)
PoM	**22**	**The Role of Structural Defects and Co-Catalysts in β-TaON for Photocatalysis** M. Behrens (Fritz-Haber-Institut, Germany)
PoM	**23**	**Electrochemically Prepared Microstructured Si Photocathodes for Water Splitting** C. Das (Brandenburg University of Technology Cottbus Senftenberg, Germany)
PoM	**24**	**Spin State and Satellite Structures in Co and Fe Based Absorber Materials and Catalyst**

D. Schmeißer (Brandenburg University of Technology Cottbus Senftenberg, Germany)

PoM	**25**	**Photoelectrochemical Deposition of Eu^{3+}-doped CaF_2 Films on TiO_2 Nanotubes** R. Liu (Zhejiang University, China)
PoM	**26**	**Elements of Photochromic Medium for Molecular Photonics Based on Spirocyclic Systems** B. Lukyanov (Southern Federal University, Russia)

Solar Water Splitting and CO_2 Conversion

PoM	**27**	**Modified Graphitic Carbon Nitride for Photocatalytic Hydrogen Evolution** K. Striegler (Universität Leipzig, Germany)
PoM	**28**	**Nanostructured p-type Ternary Oxides for Photoelectrochemical Water Splitting** I. Kondofersky (Ludwig-Maximilians-Universität München, Germany)
PoM	**29**	**Photoelectrochemical CO2 Reduction using Ru(II)-Re(I) Metal Complex on a NiO Electrode** G. Sahara (Tokyo Institute of Technology, Japan)
PoM	**30**	**Resolving Key Catalytic Intermediates in the Photoinduced Proton Reduction Cycle** M. Mirmohades (Uppsala University, Sweden)
PoM	**31**	**Photocatalytic Water-Splitting by Silver-Inserted Heter-Junction System** R. Kobayashi (University of Yamanashi, Japan)
PoM	**32**	**Copper Modified Layered Cesium Titanates for Photocatalytic Hydrogen Production** M. Pilarski (Carl von Ossietzky University Oldenburg, Germany)
PoM	**33**	**Highly Efficient Hydrogen Production and Overall Water Splitting with Barium Titanate Mixed Oxide Composites** J. Soldat (Ruhr-University Bochum, Germany)
PoM	**34**	**Visible Light-Driven Water Photooxidation at Hybrid Photoanodes** R. Beranek (Ruhr-University Bochum, Germany)
PoM	**35**	**Water Photooxidation at $CuWO_4$-Based Photoanodes** O. Mendoza-Reyes (Ruhr-University Bochum, Germany)
PoM	**36**	**Two-Step Excitation System for Overall Water-Splitting under Visible Light Using Only Titanium Oxide** S. Tanigawa (University of Yamanashi, Japan)
PoM	**37**	**Triazine-based Carbon Nitrides for Improved Visible-Light Hydrogen Evolution** K. Schwinghammer (Max Planck Institute for Solid State Research, Germany)
PoM	**38**	**All-in-one Assemble Photo-catalyst for Visible Light Driven Water Oxidation** L. Wang (KTH Royal Institute of Technology, Sweden)
PoM	**39**	**In-situ UV-Vis Absorption Spectra of Intermediate Species for O_2 Evolution on the Surface of α-Fe_2O_3** K. Ishikawa (University of Yamanashi, Japan)
PoM	**40**	**Photocatalytic Reduction of CO_2 on Brookite TiO_2 Nanorods Loaded with Metal Co-Catalyst** T. Higo (Kyushu Institute of Technology, Japan)
PoM	**41**	**Numerical Model of Nanostructured Photoelectrodes with Surface States for Water Splitting** E. Kemppainen (Aalto University, Finland)
PoM	**42**	**Solar Hydrogen Production under Near-Infrared Light Irradiation over β-Iron Silicide** M. Yoshimizu (University of Yamanashi, Japan)
PoM	**43**	**Development of O_2 Evolution Catalysts Using Pyrophosphate-Bridged Manganese Compounds** T. Takashima (University of Yamanashi, Japan)
PoM	**44**	**Solar Hydrogen Evolution by Novel, Highly Efficient TiO_2-Cu(In,Ga)Se_2 Heterojunction Photoelectrodes using Visible-Light** A. Azarpira (Helmholtz-Zentrum Berlin, Germany)
PoM	**45**	**Electronic Structure of GaP(100) Surface Reconstructions Probed with Two-Photon Photoemission (2PPE) Spectroscopy** R. Eichberger (Helmholtz-Zentrum Berlin, Germany)
PoM	**46**	**Doped and Undoped Carbon Nitride Photoelectrodes for Water Splitting** A.-K. Díaz-García (Universitat d'Alacant, Spain)
PoM	**47**	**A Comparative Experimental-Theoretical Study on Back-Illuminated Si Based Electrodes for Tandem Water Splitting Device Application** D. Bae (Technical University of Denmark, Denmark)
PoM	**48**	**Nanostructured Copper Ferrite as Photocathode for Water Photoreduction** M-I. Díaz-García (Universitat d'Alacant, Spain)
PoM	**49**	**Copper Oxide Photocathodes for Solar-Driven CO_2 Conversion** A. Gavrilov (Utrecht University, The Netherlands)
PoM	**50**	**Photocatalytic Reduction of Carbon Dioxide using Graphitic Carbon Nitride as a Semiconductor Photocathode** N. Murakami (Kyushu Institute of Technology, Japan)
PoM	**51**	**Effect of Chemical Structure of Viologen-Derivatives on the Reduction Catalyst Activity with Formate Dehydrogenase** S. Ikeyama (Oita University, Japan)

PoM	**52**	**Multilayered Electrocatalysts for Efficient Oxidation of Water on Solution-Deposited Ti-doped Hematite Films** I. G. Torregrosa (Utrecht University, The Netherlands)
PoM	**53**	**Composite Sodium Tantalates for Photocatalytic Water Splitting** T. Grewe (Max-Planck-Institut für Kohlenforschung, Germany)
PoM	**54**	**Optical and Non-Optical Enhancement of Ag@SiO_2 Core-Shell Nanoparticles on $BiVO_4$ Photoanode** F. F. Abdi (Helmholtz-Zentrum Berlin, Germany)
PoM	**55**	**MoS_2 Thin Films as Hydrogen Evolving Catalyst Layers—Influence of Sputtering Parameters on Film Morphology and Catalytic Activity** S. Bierwirth (Helmholtz-Zentrum Berlin, Germany)
PoM	**56**	**Charge Transport and Electrochemical Activity of Amorphous Co, Ni and Fe Oxide Thin Films for Water Oxidation at Neutral pH** E. M. Moreno (Freie Universität Berlin, Germany)
PoM	**57**	**Heterojunction of Li-inserted TiO_2 Nanotube Arrays and CdS Nanoparticles for Photoelectrochemical Hydrogen Evolution** U. Kang (Kyungpook National University, Korea)
PoM	**58**	**Amorphous Co-based Oxides for Water Oxidation at Neutral pH: Stability at Catalytic and Non-Catalytic Electrochemical Potentials** M. R. Mohammidi (Freie Universität Berlin, Germany)
PoM	**59**	**Enhanced Photoelectrochemical Reduction of CO_2 into Formate at p-Si Wires Coupled with Sn Metal Particles** S. K. Choi (Kyungpook National University, Korea)
PoM	**60**	**Influence of the Synthetic Conditions on the Photocatalytic Activity of Zinc-Cadmium Sulfides** A. Litke (Eindhoven University of Technology, The Netherlands)
PoM	**61**	**Screen Printed Metal Oxide Electrodes for Water Oxidation: Birnessite Anodes and an "Electrochemical Harriman Series"** S. Y. Lee (Albert-Ludwigs-Universität Freiburg, Germany)
PoM	**62**	**Surface Plasmon-Assisted Water Splitting and Glycerol Oxidation** G. Dodekatos (Max-Planck-Institut für Kohlenforschung, Germany)
PoM	**63**	**Controllable Hydrothermal Synthesis of Cu_2O Films** A. Goryachev (Eindhoven University of Technology, The Netherlands)
PoM	**64**	**Water Photooxidation by Silver Phosphate Photocatalyst** D. J. Martin (University College London, UK)
PoM	**65**	**Nanostructured Transparent Conducting Oxide—Metal Oxide Composite Photoanodes for Water Oxidation** S. P. Berglund (Helmholtz-Zentrum Berlin, Germany)
PoM	**66**	**Electrochemical Stability of Doped SnO_2 as a Transparent, Conducting Counter Electrode for Water Splitting** C. Zachäus (Helmholtz-Zentrum Berlin, Germany)
PoM	**67**	**Simple and Rapid Electrodeposition Route to Highly Active CuO Thin Films for PEC Hydrogen Generation** J. S. Sagu (Loughborough University, UK)
PoM	**68**	**Visible-light Photocatalytic Conversion of CO_2 into Solar Fuels using Nanocatalyst** T. He (National Center for Nanoscience and Technology, China)
PoM	**69**	**Simple Photochemical Systems for the Detailed Evaluation of Homogeneous Water Reduction Catalysts** R. Schmehl (Tulane University, USA)
PoM	**70**	**ZnO Nanowire Arrays Loaded with Earth-Abundant Oxygen Evolution Catalysts for Efficient Photoelectrochemical Water Cleavage** C. Jiang (University College London, UK)
PoM	**71**	**GaPN on Si(100) for Solar Water Splitting: Electronic Properties and In Situ Stability Evaluation** M. M. May (Helmholtz-Zentrum Berlin, Germany)
PoM	**72**	**PV-Hybrid Electrolyzer using Modified Superstrate Triple-Junction Silicon Solar Cells as Water Splitting Devices** D. Stellmach (Helmholtz-Zentrum Berlin, Germany)
PoM	**73**	**An Integrated Device for Carbon Reduction from Ambient Air** T. Feichtner (Max-Planck-Institute for the Science of Light, Germany)
PoM	**74**	**Plasmonics for Enhanced Photocatalytic Efficiency** K. Höflich (Helmholtz-Zentrum Berlin, Germany)
PoM	**75**	**Optimizing Charge Carrier Transport from WO_3 to a Conducting Electrode by a Fullerene Derived Interfacial Layer** S.-Y. Park (University of Twente, The Netherlands)
PoM	**76**	**Visible Light Induced Water Splitting on a Chip** M. G. C. Zoontjes (University of Twente, The Netherlands)
PoM	**77**	**Activation of CO_2 over Titania-Based Photocatalysts for Artificial Photosynthesis** V. A. de la Peña O'Shea (Institute IMDEA Energy, Spain)
PoM	**78**	**SURMOF Based Photonic Nanomaterials for Optical and LHs Applications** E. Redel (Karlsruhe Institute of Technology, Germany)
PoM	**79**	**α-Fe_2O_3 Hemisphere Array for Photoelectrochemical Water Oxidation** L. Jia (Helmholtz-Zentrum Berlin, Germany)

Poster Session — Tuesday 29 July 2014 18:00-20:00

Injection-Based Solar Cells

PoT	**1**	**A Facile Route to Spatially Aligned Dual Dyes on Nanocrystalline TiO_2 Films by a Simple Sequential Deposition** S. Hong (Korea Institute of Energy Research, Korea)
PoT	**2**	**The Effect of Electrodeposited $Mg(OH)_2$ Layer on the Performance of Mechanically Compressed Flexible Dye-Sensitized Solar Cells** T. A. N. Peiris (Loughborough University, UK)
PoT	**3**	**Organic Hole Transport Materials for Highly Efficient Solid-State Dye-Sensitized Solar Cells** B. Xu (KTH Royal Institute of Technology, Sweden)
PoT	**4**	**Systematic Study of Hybrid Passivation in Quantum-Dot-Sensitized Solar Cells** J. Huang (KTH Royal Institute of Technology, Sweden)
PoT	**5**	**Efficiently Improving Dye-Sensitized Solar Cells through Dual-NIR-Wavelength Energy Relay of Colloidal Upconversion Nanoparticles** C. Yuan (KTH Royal Institute of Technology, Sweden)
PoT	**6**	**Injection and Ultrafast Regeneration in Dye-Sensitized Solar Cells** L. J. Antila (University of Jyväskylä, Finland)
PoT	**7**	**Long-Lived Charge Separation with a Series of Diketopyrrolopyrrole Photosensitizers in p-type Dye Sensitized Solar Cells** L. Zhang (Uppsala University, Sweden)
PoT	**8**	**A New Electron Donor Acceptor Carbazole Polymer for Polymer Solar Cells** M. Norouzbahari (Eastern Mediterranean University, Turkey)
PoT	**9**	**Inverted Organic Photovoltaic Cells Using Solution-processed Vanadium Oxide as Hole Collection Layer** K. Hamada (Kyushu Institute of Technology, Japan)
PoT	**10**	**Performance Evaluation of Organic Thin Film Solar Cells using Amorphous Vanadium Oxide as a Hole Transport Layer** H. Nakano (Kyushu Institute of Technology, Japan)
PoT	**11**	**High Efficiency Solid-State Polymer Electrolyte Dye-Sensitized Solar Cells by Bi-functional Porous Layer** W. Cho (Hanyang University, Korea)
PoT	**12**	**Synthesis and Characterization of Novel Perylene Based Dyes for Dye Synthesized Solar Cells** D. Ozdal (Cyprus International University, Turkey)
PoT	**13**	**A New Intelligent Material for Photovoltaic Applications: Synthesis, Photophysical and Electrochemical Properties** N. P. Aydinlik (Cyprus International University, Turkey)
PoT	**14**	**Electron Injection Dynamics of N719/TiO_2 System in Different Room Temperature Ionic Liquid (IL) Environments by Femtosecond Transient Absorption Spectroscopy: Effect of Varying Viscosity** A. Furube (National Institute of Advanced Industrial Science and Technology, Japan)
PoT	**15**	**Dye Aggregation Effect on Interfacial Electron-Transfer Dynamics in Zinc Phthalocyanine-Sensitized Solar Cells** H. Matsuzaki (National Institute of Advanced Industrial Science and Technology, Japan)
PoT	**16**	**TEMPO-Co Tandem Redox Systems Outperforming Single Co Complex Electrolytes in Dye-Sensitized Solar Cells** J. Cong (KTH Royal Institute of Technology, Sweden)
PoT	**17**	**Polymer Gel Electrolytes Including Cobalt Complex Redox Couples for Efficient and Durable Dye-Sensitized Solar Cells** M.-S. Kang (Sangmyung University, Korea)
PoT	**18**	**Printable Polyethers/SiO_2 Composite Paste Electrolytes for Flexible Dye-Sensitized Solar Cells** M.-S. Kang (Sangmyung University, Korea)
PoT	**19**	**Electrolyte Composition Effect on the Long-Term Performance of Co(II/III)-Mediated Dye-Sensitized Solar Cells** J. Gao (KTH Royal Institute of Technology, Sweden)
PoT	**20**	**Novel Macromolecule Containing Perylene Dye Moieties: Synthesis, Characterization, Electrochemistry and Dye-Sensitized Solar Cell Applications** D. Uzun (Eastern Mediterranean University, Turkey)
PoT	**21**	**A New Thiophene-Donor-Substituted Perylene Sensitizer and Its Photovoltaic Performance in Dye-Sensitized Solar Cell** H. Icil (Eastern Mediterranean University, Turkey)
PoT	**22**	**$HC(NH_2)_2PbI_3$ Perovskite Solar Cells Based on Oxide Nanorods: TiO_2 vs ZnO** K.-H. Bae (Sungkyunkwan University, Korea)
PoT	**23**	**Triphenylamine and Spiro Based Copolymers as Hole Transporting Materials for $CH_3NH_3PbI_3$ Perovskite Solar Cells** A.-N. Cho (Sungkyunkwan University, Korea)
PoT	**24**	**Solid State p-type Dye-Sensitized Solar Cells** H. Tian (Uppsala University, Sweden)
PoT	**25**	**$(CH_3NH_3)PbI_3$ Superstructures from a New Crystalline TEG-Precursor Phase**

		T. Kollek (University of Konstanz, Germany)
PoT	**26**	**Type II Manganese-Doped ZnSe/CdS Quantum Dot Sensitized Solar Cells** A. Jamshidi (KTH University, Sweden)
PoT	**27**	**Performance Optimization of CdSe Quantum Dot-Sensitized Solar Cells with CuS/Mesoporous SnO_2 Cathode** M. Yoshii (Kinki University, Japan)
PoT	**28**	**Control of Charge Recombination in Perovskite Solar Cells by Using MgO Coated TiO_2 Photoelectrode** H. S. Jung (Sungkyunkwan University, Korea)
PoT	**29**	**Ultrafast Hole and Electron Transfer Dynamics in d-Dot Super Sensitized Solar Cell: A Step Ahead on the Design of Higher Efficient Quantum Dot Sensitized Solar Cell** T. Debnath (Bhabha Atomic Research Centre, India)
PoT	**30**	**Electrochemical Flowcell for In-situ Soft X-ray Absorption and Emission Spectroscopy** C. Schwanke (Helmholtz-Zentrum Berlin, Germany)
PoT	**31**	**Broadband Dye-Zeolite L Composites for Luminescent Solar Concentrators** P. Cao (University of Fribourg, Switzerland)
PoT	**32**	**Fibrous Electrolyte as a High Way for the Charge Transport in Nano-porous TiO_2 Film for Flexible Solid-State Dye-Sensitized Solar Cells** G.-J. Yang (Xi'an Jiaotong University, China)
PoT	**33**	**Bulk Heterojunction Solar Cells Composed of Conjugated Polymers and Carbon-Based Nanostructures** D. Tasis (FORTH-ICES, Greece)
PoT	**34**	**P-type Dye Sensitized Solar Cell** E. Sheibani (KTH Royal Institute of Technology, Sweden)

Photocatalysis and Environmental Chemistry

PoT	**35**	**Tailoring of Carbon Based-TiO_2 Nanomaterials for Sustainable Solar Hydrogen Production and Polluted Water Decontamination** H. H. Mohamed (University of Dammam, Saudi Arabia)
PoT	**36**	**Photocatalytic Decomposition of Acetaldehyde on N-TiO_2** B. Tryba (West Pomeranian University of Szczecin, Poland)
PoT	**37**	**Towards Tailor-Made Solar Water Splitting Catalysts: Morphological Control of $LaTiO_2N$ Particles and Co-Catalyst Loading** S. Landsmann (EMPA, Switzerland)
PoT	**38**	**Photocatalytic Treatment of Natural Water for Drinking** N. Negishi (National Institute of Advanced Industrial Science and Technology, Japan)
PoT	**39**	**Interparticle Charge Transfer Effect within {101}-Oriented Bypyramidal TiO_2 Agglomerates for High Photocatalytic and Photoelectrochemical Properties** J. Lim (POSTECH, Korea)
PoT	**40**	**Investigation of Spectral Characteristics and Photoactivity of F-doped Titania** K. V. Nikitin (Saint-Petersburg State University, Russia)
PoT	**41**	**Photocatalytic Partial Oxidation of Phenanthrene in Green Organic Solvents** L. Palmisano (Università degli Studi di Palermo, Italy)
PoT	**42**	**Enhanced Photocatalytic Degradation Rates at TiO_2 Photocatalysts Modified with Redox Co-Catalysts** P. Pulisova (Ruhr-Universität Bochum, Germany)
PoT	**43**	**4G-PHOTOCAT – Fourth Generation Photocatalysts: Nano-engineered Composites for Water Decontamination in Low-Cost Paintable Photoreactors** D. Mitoraj (Ruhr-Universität Bochum, Germany)
PoT	**44**	**Time-Resolved Microwave Conductivity Study of Commercially Available TiO_2 Photocatalysts** R. Katoh (Nihon University, Japan)
PoT	**45**	**Anodized TiO_2 Nanotubes Modified with Metal Nanoparticles: Characterization and Photocatalytic Applications** M. Nischk (Gdansk University of Technology, Poland)
PoT	**46**	**Modification of Graphitic Carbon Nitride (g-C_3N_4) for Visible-Light Responsive Photocatalyst with Metal Salts Solution** T. Sano (Advanced Industrial Science and Technology, Japan)
PoT	**47**	**Modification of TiO_2 Hollow Microspheres with Small Metal Nanoparticles (Cu, Bi, Ru) by Radiolysis** A. Gołąbiewska (Gdansk University of Technology, Poland)
PoT	**48**	**Photocatalytic Partial Oxidation of Propylene in the Presence of Mesoporous Organosilane-Modified Titanias** E. I. García-López (Università di Palermo, Italy)
PoT	**49**	**Fluorine and Niobium Doped TiO_2: Chemical and Spectroscopic Properties of Polycrystalline n-type Doped Anatase** S. Livraghi (University of Torino, Italy)
PoT	**50**	**FT-IR Study of the Influence of UV-Vis Irradiation on Water Layer on the TiO_2 Anatase Powder Surface** K. M. Bulanin (Saint-Petersburg State University, Russia)

PoT	**51**	**Preparation and Characterization of Er^{3+}—Yb^{3+} Codoped TiO_2 Nanoparticles** J. Reszczynska (Gdansk University of Technology, Poland)
PoT	**52**	**Photocatalytic Activity of Titanium Dioxide Co-Modified with Noble Metals** J. Reszczynska (Gdansk University of Technology, Poland)
PoT	**53**	**Switching Oxygen Reduction on TiO_2 from $1e^-$ to $4e^-$ by Pendant Proton Relay** C. Chen (Chinese Academy of Sciences, China)
PoT	**54**	**Influence of Coating Thickness on Photodegradation of Benzo-[a]-pyrene using LX Photocatalytic Paint** P. Homa (West Pomeranian University of Technology, Poland)
PoT	**55**	**Photodegradation of Some Organic Compounds on $[Ru(phendo)(CN)_4]^{2-}$ Sensitized Titanium Dioxide** O. Horváth (University of Pannonia, Hungary)
PoT	**56**	**Effect of the Dopant Concentration on Photoactivity of Al-doped TiO_2 Samples** N. Glazkova (Saint Petersburg State University, Russia)
PoT	**57**	**N-doped TiO_2 Photocatalysts Prepared by Different Techniques** D. S. Afanasev (Saint Petersburg State University, Russia)
PoT	**58**	**The Effect of Source TiO_2 and Calcination Temperature on the Structure and Photocatalytic Activity of Au/Pd-TiO_2 under Visible Light** A. Cybula (Gdansk University of Technology, Poland)
PoT	**59**	**Photocatalytic Activity of TiO_2-Foams** M. Jami (Leibniz Universität Hannover, Germany)
PoT	**60**	**An Unexpected Fluctuating Reactivity for Odd and Even Carbon Numbers in the TiO_2 Photocatalytic Decarboxylation of C2-C6 Dicarboxylic Acids** W. Ma (Chinese Academy of Sciences, China)
PoT	**61**	**Photocatalytic Methylene Blue Degradation using an Internally Illuminated Plastic Optical Fiber** S. Kim (Gyeongbuk Institute of Science and Technology, Korea)
PoT	**62**	**ATR-FTIR Study of D_2O Adsorption and Surface Hydroxyl Groups Behavior on TiO_2 Surface** H. Belhadj (Leibniz University of Hannover, Germany)
PoT	**63**	**The Effect of Praseodymium Ion (Pr^{3+}) Addition on the Photocatalytic Activity of ZnO Supported Zeolite Composites** A. N. Ökte (Boğaziçi University, Turkey)
PoT	**64**	**Effect of the Calcination Temperature on the Photocatalytic and Morphological Properties of Mesoporous TiO_2 Nanocrystals** M. F. Atitar (Leibiz Universität Hannover, Germany)
PoT	**65**	**Photocatalytic Reduction of Cr^{VI} on Hematite Nanoparticles** I. Kretschmer (Leibniz University Hannover, Germany)
PoT	**66**	**A Novel Fluorescence Method for Rapid Photocatalytic Activity Testing** A. T. B. De la Cruz (Leibniz Universität Hannover, Germany)
PoT	**67**	**Effect of the Milling Duration on the Photocatalytic Activity of TiO_2** J. W. Melcher (Leibniz Universität Hannover, Germany)
PoT	**68**	**Improved Phenol Photodegradation using ZnAl and ZnAlMn LDH as Photocatalysts** A. Mantilla (CICATA-Legaria, Mexico)
PoT	**69**	**Apparent and Intrinsic Photocatalytic Activities of TiO_2 for Organic Degradation** Y. Xu (Zhejian University, China)
PoT	**70**	**Water Pollutants Producing Electricity by Means of Photo-Fuel-Cells** I. Tantis (University of Patras, Greece)
PoT	**71**	**Photo- and Radio-Catalysis Degradation of Organics in Liquid Waste Water** J. Jiménez-Becerril (Instituto Nacional de Investigaciones Nucleares, Mexico)

Photoinduced Electron Transfer

PoT	**72**	**In situ Optical Study of UV/Vis- and Thermo-Stimulated Effects in Yellow Titania** N. I. Glazkova (Saint Petersburg State University, Russia)
PoT	**73**	**Visible Light Induced Conduction Band Mediated Charge Transfer from a Dye to a Catalyst** M. Abrahamsson (Chalmers University of Technology, Sweden)
PoT	**74**	**High Extinction Coefficient Ru-Sensitizers that Promote Hole Transfer on Nanocrystalline TiO_2** J. H. J Hedberg (Chalmers University of Technology, Sweden)
PoT	**75**	**Photophysical and Photochemical Investigation of Water-Soluble, Anionic Neodymium(III) Porphyrins** O. Horváth (University of Pannonia, Hungary)
PoT	**76**	**Photosensitization in Inorganic Semiconductor Systems Based on Visible Light-Induced Hole Injection** J. Kuncewicz (Jagiellonian University, Poland)