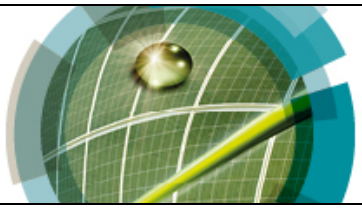
Artificial Photosynthesis

Faraday Discussion



25–27 March 2019
Cambridge, UK

Monday 25 March

11:00	Registration, Tea and Coffee	
12:00	Lunch	
12:45	**Welcome and Introductions** Erwin Reisner, *Chair of Scientific Committee*	
12:55	**Outline of Discussion Format** Colin King and Lorna Arens, *Royal Society of Chemistry Publishing Editors*	
13:00	**Introductory Lecture** (Session Chair: Erwin Reisner) Matthias Beller *Leibniz Institute for Catalysis*	
	Session 1: Biological approaches to artificial photosynthesis (Session Chair: Jenny Zhang)	
14:00	**Tuning purple bacteria salt-tolerance for photobioelectrochemical systems in saline environments** Matteo Grattieri, Kevin Beaver, Erin M. Gaffney and Shelley D. Minteer *The University of Utah*	**Paper 24802**
14:05	**Towards compartmentalized photocatalysis: multiheme proteins as transmembrane molecular electron conduits** Anna Stikane, Ee Taek Hwang, Emma V. Ainsworth, Samuel Piper, Kevin Critchley, Julea N. Butt, Erwin Reisner and Lars J. C. Jeuken *University of Leeds*	**Paper 24666**
14:10	**Solar-driven carbon dioxide fixation using photosynthetic semiconductor bio-hybrids** Stefano Cestellos-Blanco, Hao Zhang and Peidong Yang *University of California, Berkeley*	**Paper 24803**
14:15	**A kinetic model for redox-active film based biophotoelectrodes** D. Buesen, T. Hoefer, H. Zhang and N. Plumeré *Ruhr-University Bochum*	**Paper 24715**
14:20	Discussion	
16.00	Afternoon tea	
	Session 2: Synthetic approaches to artificial photosynthesis (Session Chair: Christine Caputo)	
16:30	**Photocatalytically active ladder polymers** Anastasia Vogel, Mark Forster, Liam Wilbraham, Charlotte L. Smith, Alexander Cowan, Martijn A. Zwijnenburg, Reiner Sebastian Sprick and Andrew I. Cooper *University of Liverpool*	**Paper 24805**
16:35	**Computational high-throughput screening of polymeric photocatalysts: exploring the effect of composition, sequence isomerism and conformational degrees of freedom** Isabelle Heath-Apostolopoulos, Liam Wilbraham and Martijn A. Zwijnenburg *University College London*	**Paper 24743**
16:40	**Visible light-driven water oxidation with a ruthenium sensitizer and a cobalt-based catalyst connected with a polymeric platform**	**Paper 24740**

	Zeynep Kap and Ferdi Karadas *Bilkent University*	
16:45	Discussion	
18:00	Lightning presentations (by invitation of the scientific committee)	
18:30	Poster Session and Wine Reception	
20:30	Close of day	

Tuesday 26 March

	Session 2 continued: Synthetic approaches to artificial photosynthesis (Session Chair: Christine Caputo)	
09:30	**Evaluating the impacts of amino acids in the second and outer coordination spheres of Rh-bis(diphosphine) complexes for CO_2 hydrogenation** Aaron P. Walsh, Joseph A. Laureanti, Sriram Katipamula, Geoffrey M. Chambers, Nilusha Priyadarshani, Sheri Lense, J. Timothy Bays, John C. Linehan and Wendy J. Shaw *Pacific Northwest National Laboratory*	**Paper 24804**
09:35	**Performance of enhanced DuBois type water reduction catalysts (WRC) in artificial photosynthesis - effects of various proton relays during catalysis** Wolfgang Viertl, Johann Pann, Richard Pehn, Helena Roithmeyer, Marvin Bendig, Alba Rodríguez-Villalón, Raphael Bereiter, Max Heiderscheid, Thomas Müller, Xia Zhao, Thomas Hofer, Mark E. Thompson, Shuyang Shid and Peter Brueggeller *University of Innsbruck*	**Paper 24605**
09:40	**Photoinduced hole transfer from tris(bipyridine)ruthenium dye to a high-valent iron-based water oxidation catalyst** Sergii I. Shylin, Mariia V. Pavliuk, Luca D'Amario, Igor O. Fritsky and Gustav Berggren *Uppsala University*	**Paper 24622**
09:45	Discussion	
11:00	Morning Tea	
	Session 2 continued: Synthetic approaches to artificial photosynthesis (Session Chair: Andrew Bocarsly)	
11:45	**TBC**	**Paper**
11:50	**Light induced formation of a surface heterojunction in photocharged $CuWO_4$ photoanodes** Anirudh Venugopal and Wilson A. Smith *TU Delft*	**Paper 24661**
11:55	**Distinguishing the effects of altered morphology and size on the visible-light-induced water oxidation activity and photoelectrochemical performance of $BaTaO_2N$ crystal structures** Mirabbos Hojamberdiev, Kenta Kawashima, Takashi Hisatomi, Masao Katayama, Masashi Hasegawa, Kazunari Domen and Katsuya Teshima *Nagoya University*	**Paper 24053**
12.00	Discussion	
13.15	Lunch	
14:15	**Iron phosphate modified calcium iron oxide as an efficient and robust catalyst in electrocatalyzing oxygen evolution from**	**Paper 24378**

	seawater Wei-Hsiang Huang and Chia-Yu Lin *National Cheng Kung University*	
14:20	**Mechanistic insights into C2 and C3 product generation using Ni_3Al and Ni_3Ga electrocatalysts for CO_2 reduction** Aubrey R. Paris and Andrew B. Bocarsly *Princeton University*	**Paper 24724**
14:25	**$Fe_xNi_{9-x}S_8$ (x = 3-6) as potential photocatalysts for solar-driven hydrogen production?** David Tetzlaff, Christopher Simon, Demetra S. Achilleos, Mathias Smialkowski, Kai junge Puring, André Bloesser, Stefan Piontek, Hatice Kasap, Daniel Siegmund, Erwin Reisner, Roland Marschall and Ulf-Peter Apfel *Ruhr-University Bochum*	**Paper 24493**
14:30	Discussion	
15:45	Afternoon Tea	
	Session 3: Demonstrator Devices for Artificial Photosynthesis (Session Chair: Sophia Haussener)	
16:30	**Sequential catalysis enables enhanced C-C coupling towards multi-carbon alkenes and alcohols in carbon dioxide reduction: a study on bifunctional Cu/Au electrocatalysts** Jing Gao, Dan Ren, Xueyi Guo, Shaik Mohammed Zakeeruddin and Michael Grätzel *École Polytechnique Fédérale de Lausanne*	**Paper 24806**
16:35	**A tandem photoelectrochemical water splitting cell consisting of $CuBi_2O_4$ and $BiVO_4$ synthesized from a single $Bi_4O_5I_2$ nanosheet template** Yi-Hsuan Lai, Kai-Che Lin, Chen-Yang Yen and Bo-Jyun Jiang *National Sun Yat-sen University*	**Paper 24675**
16:40	Discussion	
17:30	Close of sessions	
18:30	Pre-Dinner Drinks	
19:00	Conference Dinner	

Wednesday 27 March

	Session 3 continued: Demonstrator Devices for Artificial Photosynthesis (Session Chair: Sophia Haussener)	
09:00	**Z-scheme photocatalyst systems employing Rh- and Ir-doped metal oxide materials for water splitting under visible light irradiation** Akihiko Kudo, Shunya Yoshino, Taichi Tsuchiya, Yuhei Udagawa, Yukihiro Takahashi, Masaharu Yamaguchi, Ikue Ogasawara, Hiroe Matsumoto and Akihide Iwase *Tokyo University of Science*	**Paper 24807**
09:05	**A microfluidic photoelectrochemical cell for solar-driven CO_2 conversion into liquid fuels with CuO-based photocathodes** Evangelos Kalamaras, Meltiani Belekoukia, Jeannie Z. Y. Tan, Jin Xuan, M. Mercedes Maroto-Valer and John M. Andresen *Heriot–Watt University, Edinburgh*	**Paper 24733**
09:10	Discussion	
10:00	Morning Tea	

	Session 4: Beyond artificial photosynthesis (Session Chair: Matthias Beller)	
10:30	**Utilising excited state organic anions for photoredox catalysis: activation of (hetero)aryl chlorides by visible light absorbing 9-anthrolate anions** Matthias Schmalzbauer, Indrajit Ghosh and Burkhard König *Universität Regensbuerrg*	**Paper 24808**
10:35	**Influence of carbonaceous species on aqueous photo-catalytic nitrogen fixation by titania** Yu-Hsuan Liu, Manh Hiep Vu, JeongHoon Lim, Trong-On Do and Marta C. Hatzell *Georgia Institute of Technology*	**Paper 24720**
10:40	***P*-type dye-sensitized solar cells based on pseudorotaxane mediated charge-transfer** Tessel Bouwens, Simon Mathew and Joost N. H. Reek *University of Amsterdam*	**Paper 24809**
10:45	**Photo-generation of propylene carbonates using hyper-branched Ru-TiO_2** Stelios Gavrielides, Jeannie Z. Y. Tan, Eva Sanchez Fernandez and M. Mercedes Maroto-Valer *Heriot–Watt University, Edinburgh*	**Paper 24718**
10:50	Discussion	
12:30	**Concluding Remarks Lecture** (Session Chair: Erwin Reisner) James Durrant *Imperial College London, United Kingdom*	
13:10	**Acknowledgements**	
13:15	**Close of meeting and Lunch**	

Please note that this is a draft programme and timings may change.