Online nanoGe Fall Meeting 20 (OnlineNFM20)

#SolFuel20. Solar Fuels

2020 October 20th - 21st
Conference Chairs: Víctor A. de la Peña O'Shea and Thomas Hamann

Conference Program

October 20th - Day 1 (Tuesday)	
08:30 - 08:35	**SolFuel Opening nanoGe**
08:35 - 08:45	**SolFuel Session Introduction 1.1**
	SolFuel 1.1
08:45 - 09:05 1.1-I1	Kazunari Domen *(Research Initiative for Supra-Materials, Shinshu University, 4-17-1 Wakasato, Nagano-shi, Nagano 380-8553, Japan)* Photocatalytic water splitting for solar hydrogen production
09:05 - 09:25 1.1-I2	Alexandr Simonov *(School of Chemistry, Monash University, Victoria 3800, Australia)*, Douglas MacFarlane Towards genuine electrocatalytic synthesis of ammonia from dinitrogen
09:25 - 09:45 1.1-I3	Leif Hammarström *(Department of Chemistry – Ångström Laboratory, Physical Chemistry, Uppsala University, Sweden)*, Shihuai Wang, Belinda Peterson Rimgard, Nora Eliasson, Reiner Lomoth Capturing intermediates of solar fuels catalysts by transient UV-VIS and mid-IR spectroscopy
09:45 - 10:05	Discussion
	SolFuel 1.2
10:05 - 10:15 1.2-T1	Michael Sachs *(Department of Chemistry and Centre for Plastic Electronics, Imperial College London)*, Hyojung Cha, Jan Kosco, Catherine M. Aitchison, Laia Francàs, Sacha Corby, Chao-Lung Chiang, Anna A. Wilson, Robert Godin, Alexander Fahey-Williams, Andrew I. Cooper, Reiner Sebastian Sprick, Iain McCulloch, James R. Durrant From charge generation to hydrogen evolution with conjugated polymer photocatalysts
10:15 - 10:25 1.2-T2	Elena Alfonso-González *(IMDEA Energy Institute, Photoactivated Processes Unit, Spain)*, Carmen G. López-Calixto, Diego García Heredia, Miguel Gómez Mendoza, Freddy E. Oropeza, Marta Liras, Mariam Barawi, Víctor A. de la Peña O'Shea Hybrid Organic-Inorganic Photoanodes Based on Conjugated Porous Polymers Prepared by Electropolymerization
10:25 - 10:35 1.2-T3	Carlota Bozal-Ginesta *(Department of Chemistry, Imperial College London)*, Camilo Mesa, Annika Eisenschmidt, Laia Francàs, Ravi Shankar, Daniel Antón-García, Julien Warnan, Janina Willkomm, Anna Reynal, Erwin Reisner, James Durrant Charge Accumulation Kinetics in Multi-redox Molecular Catalysts Immobilised on TiO2 for Solar Fuels Production
10:35 - 10:45 1.2-T4	Sibimol Luke *(ME&MS, IITBombay)*, Manjuanth Chatti, Asha Yadav, Jiban Kangsabanik, Akshat Tanksale, Aftab Alam, Aswani Yella, Alexandr N Simonov Catalyst in a Stable Matrix: Engineering Robust Water Splitting Anodes for Long Term Operation at High Temperature in Acidic Media
10:35 - 10:45 1.2-T5	Cristina Tapia, Carmen Jarne, Logan Paul, Raquel Lucena, Sonia Zacarias, Ines A. C. Pereira, Sergey Shleev, José C. Conesa *(Instituto de Catálisis y Petroleoquímica, CSIC, Madrid)*, Marcos Pita, Antonio L. De Lacey Enzyme-sulphide combinations for visible light-induced water splitting
10:45 - 11:15	Discussion
11:15 - 12:00	**SolFuel Break**
12:00 - 12:05	**SolFuel Opening nanoGe**

	SolFuel 1.3
12:05 - 12:15 1.3-T1	Sixto Gimenez *(University Jaume I, Spain)*, Miguel Garcia-Tecedor, Roser Fernandez-Climent Photoelectrochemical production of solar fuels and chemicals with earth-abundant semiconductor materials
12:15 - 12:25 1.3-T2	Ronen Gottesman *(Institute for Solar Fuels, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH)*, Igal Levine, Markus Schleuning, Rowshanak Irani, Daniel Abou-Ras, Thomas Dittrich, Dennis Friedrich, Roel van de Krol Overcoming Phase-purity Challenges in CuBi2O4 Photoelectrodes
12:25 - 12:35 1.3-T3	David Fermin *(School of Chemistry, University of Bristol)*, Xin Sun, Devendra Tiwari LaFeO3 Thin-Films with Photovoltages Above 1.4 V vs RHE Towards the Hydrogen Evolution Reaction.
12:35 - 12:45 1.3-T4	Patrick Schnell *(Institute for Solar Fuels, Helmholtz-Zentrum Berlin für Materialien und Energie GmbH)*, Moritz Kölbach, Markus Schleuning, Keisuke Obata, Rowshanak Irani, Ibbi Y. Ahmet, Moussab Harb, David E. Starr, Roel van de Krol, Fatwa F. Abdi Interfacial SnO2 Formation Limits the Photovoltage of α-SnWO4/NiOX Photoanodes Prepared by Pulsed Laser Deposition
12:35 - 12:45 1.3-T5	Camilo A. Mesa *(Universitat Jaume I, Institute of Advanced Materials (INAM) - Spain)*, Ludmilla Steier, Benjamin Moss, Laia Francàs, James E. Thorne, Michael Grätzel, James R. Durrant Impact of the Synthesis Route on the Water Oxidation Kinetics of Hematite Photoanodes
12:45 - 13:15	Discussion
13:15 - 13:40	**SolFuel Short Break**
13:40 - 13:50	**SolFuel Introduction Session 1.4**
	SolFuel 1.4
13:50 - 14:10 1.4-I1	Karen Mulfort *(Division of Chemical Sciences and Engineering, Argonne National Laboratory)*, Andrea Potocny, Jens Niklas, Oleg Poluektov Influence of the second coordination sphere and beyond in the mechanism of H2 generation by molecular cobalt catalysts
14:10 - 14:30 1.4-I2	Francesca Toma *(Lawrence Berkeley National Laboratory)* (Photo)electrocatalysis at Work: Understanding Chemical Transformations
14:30 - 14:50	Discussion
14:50 - 16:30	**ePoster Session**

October 21st - Day 2 (Wednesday)	
09:30 - 09:35	**SolFuel Opening nanoGe**
	SolFuel 2.1
09:35 - 09:45 2.1-T1	Wooseok Yang *(University of Zurich)*, David Tilley Operando Characterization of Multilayer Thin Film Photocathodes for Photoelectrochemical Water Splitting by Impedance Spectroscopy
09:45 - 09:55 2.1-T2	Peter Cendula *(University of Zilina, Faculty of Electrical Engineering, Slovakia)*, Prangya P Sahoo, Gabriel Cibira Analytical Model For Photocurrent-Voltage And Impedance Response Of Illuminated Semiconductor/Electrolyte Interface Under Small Voltage Bias
09:55 - 10:05 2.1-T3	Laia Francàs Forcada *(Universitat Autònoma de Barcelona (UAB))* Water splitting: role of the catalyst and mechanistic studies
10:05 - 10:15 2.1-T4	Keisuke Obata *(Helmholtz-Zentrum Berlin für Materialien und Energie GmbH, Germany)*, Amel Mokeddem, Fatwa Abdi Multiphase Fluid Dynamic Simulations of Product Crossover in Solar-driven Membrane-less Water Splitting Devices
10:05 - 10:15 2.1-T5	Miguel García-Tecedor *(University Jaume I, Spain)*, Sixto Giménez Small perturbation techniques as powerful tools for the investigation of PEC systems
10:15 - 10:45	Discussion
10:45 - 12:00	**SolFuel Break**
12:00 - 12:05	**SolFuel Opening nanoGe**
12:05 - 12:15	**SolFuel Session Introduction 2.2**
	SolFuel 2.2
12:15 - 12:35 2.2-I1	Sophia Haussener *(Laboratory of Renewable Energy Science and Engineering, École Polytechnique Fédérale de Lausanne, Switzerland)* Multi-scale design of robust photo-electrochemical water splitting devices and systems
12:35 - 12:55 2.2-I2	james durrant *(SPECIFIC – Swansea University, Materials Research Centre, College of Engineering, UK)* Charge carrier dynamics in metal oxide photoelectrodes and photocatalysts for solar driven water splitting
12:55 - 13:15 2.2-I3	Dunwei Wang *(Boston College)* Immobilizing Molecular Catalysts on Photoelectrode Surfaces
13:15 - 13:35	Discussion
	SolFuel 2.3
13:35 - 13:45 2.3-T1	Saumya Gulati *(University of Louisville)*, Josh Spurgeon Magnetically Aligned Tandem Semiconductor Microwire Particles for Low-Cost, High Efficiency Solar Hydrogen Generation
13:45 - 13:55 2.3-T2	Yuxuan Zhang *(University of Montreal, Department of Chemistry)*, Nikolay Kornienko Metal-organic framework with molecularly defined active sites as a model system for electrochemical biomass valorization
13:55 - 14:05 2.3-T3	Franky Bedoya-Lora *(Centro de Investigación, Innovación y Desarrollo de Materiales – CIDEMAT, Universidad de Antioquia UdeA)*, Michael Valencia-García, Anna Hankin, Dino Klotz, Jorge Calderón Interfacial charge transfer efficiency of photo-electrodes – how to measure it accurately and reproducibly
14:05 - 14:15 2.3-T4	Nikolay Kornienko *(University of Montreal, Department of Chemistry)* Integrating Materials Design and Operando Spectroscopy for the Development of Next Generation CO2 Reduction and Biomass Valorization Catalytic Systems
14:15 - 14:45	Discussion
14:45 - 14:50	**SolFuel Closing**

Poster Contribution

194	Alberto Vega-Poot *(Centro de Investigación y de Estudios Avanzados del IPN)*, Manuel Rodriguez-Pérez, Juan Becerril-González, Ingrid Rodriguez-Gutierrez, Jian Wang, Jinzan Su, Gerko Oskam Charge Separation and Electron Transfer Processes at Surface Modified Hematite Electrodes for Solar Water Splitting
218	Chun-Hao Chiang *(National Taiwan University, Department of Materials Science and Engineering)*, Hung-Min Lin, Che-Kuei Ku, Po-Hsien Wu, Chun-Wei Chen 3D Textured Graphene/Silicon Schottky Junction photocathode for Enhanced Photoelectrochemical Performance
223	Anna Wilson *(Department of Chemistry, Centre of Plastic Electronic, Imperial College London)*, Benjamin Moss, Takashi Hisatomi, Kazunari Domen, James Durrant Investigating the extended charge lifetimes in photocatalyst sheets for sunlight-driven overall water splitting
239	Sixto Giménez, Miguel Garcia-Tecedor, Roser Fernandez-Climent *(Universitat Jaume I, Institute of Advanced Materials (INAM) - Spain)* Cu-DeRIVED Catalysts for Electrochemical CO2 Reduction Reaction
263	Christian Engelbrekt *(Technical University of Denmark (DTU))*, Matt Law, Dmitry Fishman, Vartkess A. Apkarian Au-Pt Core-Shell (Au@Pt) Nanocrystals (NCs) and Plasmon-Mediated Energy Funneling to the NC Surface
268	Gustavo A. S. Alves *(University of Sao Paulo, Sao Carlos Institute of Physics)*, Renato V. Golçalves Band-gap Narrowing of NaTaO3 for Photocatalytic Hydrogen Production Under Simulated Sunlight: a Pseudo-cubic Phase Induced via Bi-doping