FACT SHEET : OFFICIAL OPENING OF THE SOLAR FUELS LAB

Singapore, 8 February 2011

International Collaborators

Professor James Barber FRS
Ernst Chain Professor of Biochemistry, Imperial College London

James Barber FRS is the Ernst Chain Professor of Biochemistry at Imperial College London. He also holds Visiting Professorships at Politecnico di Torino, Italy and Nanyang Technological University, Singapore. He graduated in Chemistry from the University of Wales and obtained his MSc and PhD in Biophysics from UEA. His core research has been in photosynthesis and he is currently President of the International Society of Photosynthesis Research.

He has published in excess of 600 research papers and reviews and lectures extensively throughout the world. His research achievements and high international standing has been recognized by many honours. He is Fellow of The Royal Society (FRS), Fellow of the Royal Society of Chemistry (FRSC), Foreign Member of the Royal Swedish Academy of Sciences, a Member of the Academy of Europe (Academia Europaea) and a honorary doctorate of Stockholm University. Amongst his other awards are Flintoff Medal of the Royal Society of Chemistry, ltalgas/Eni Prize for Energy and the Environment, Novartis medal of the UK Biochemical Society and the Wheland Medal and Prize from the University of Chicago.

He has been a Lee Kuan Yew Distinguish Visitor to Singapore and given several internationally prestigious lectures including the Daniel Arnon Lecture at the University of California, Berkeley and a key address on Energy at the 2009 G8 University Summit in Torino, Italy.

Professor Michael Gratzel
Laboratory of Photonics and Interfaces, Ecole Polytechnique Fédérale de Lausanne, Lausanne Switzerland,

Professor at the Ecole Polytechnique de Lausanne, Michael Gratzel directs the Laboratory of Photonics and Interfaces. He pioneered studies of mesoscopic junctions and their use in photovoltaic cells, lithium ion batteries as well as photoelectrochemical devices for the splitting of water into hydrogen and oxygen by sunlight. He discovered a new type of solar cell based on dye sensitized nanocrystalline oxide films.

Author of over 800 publications, two books and inventor of more than 50 patents, his work has been cited over 60’000 times (h-factor 116) he is one of the 10 most highly cited chemists in the world. He has received numerous prestigious awards, including the City of Florence Prize, the Balzan Prize, the Harvey Prize the Galvani Medal, the Faraday Medal, the Dutch Havinga Award, the Japan Coordination Chemistry Award, the ENI-Italgas Prize, the European Innovation Prize 2000, and the Gerischer Award.
He is one of the 3 laureates of the 2010 Millennium Technology Award. He received a doctor's degree in Natural Science from the Technical University Berlin and honorary doctor's degrees from the Universities of Hasselt (Belgium), Delft (The Netherlands), Uppsala (Sweden) and Turin (Italy). He is a member of the Swiss Chemical Society, the European Academy of Science, a Fellow of the Royal Society of Chemistry and was elected honorary member of the Société Vaudoise de Sciences Naturelles.

**Heinz Frei**

*Physical Biosciences Division and Helios Solar Energy Research Center*

*Lawrence Berkeley National Laboratory, Berkeley*

Heinz Frei, Dr.sc. (ETHZ), is a Senior Scientist at LBNL and Deputy Director of the Helios Solar Energy Research Center. He leads the Interface effort of the Joint Center for Artificial Photosynthesis (JCAP) and is part of the JCAP Executive Committee. An expert in heterogeneous photochemistry, nanomaterials functionalization and catalytic mechanisms by time resolved spectroscopy, Frei has developed new zeolite-based methods for the selective oxidation of hydrocarbons, and for the synthesis of all-inorganic molecular photocatalysts for water oxidation and carbon dioxide activation in nanomaterials. The current focus of his research is on the coupling of photoactive components in integrated photosynthetic systems.

A frequent plenary lecturer at international conferences and member of DOE workshop panels, he has co-organized several symposia of sunlight to fuel conversion in the past few years and currently serves on the Expert Group on Science for Energy of the International Energy Agency. He is an editor of the Royal Society of Chemistry Energy and Environment Series and recipient of the Werner-Prize of the Swiss Chemical Society.

**John Turner**

*National Renewable Energy Laboratory, Washington, D.C.*

John A. Turner, Ph.D., is a Research Fellow at the National Renewable Energy Laboratory. He received his B.S. degree in Chemistry from Idaho University, his Ph.D. in Analytical Chemistry from Colorado State University, and completed a postdoctoral appointment at the California Institute of Technology before joining the Laboratory (then the Solar Energy Research Institute) in 1979.

His research is primarily concerned with enabling technologies for the implementation of hydrogen systems into the energy infrastructure. His research topics include the direct conversion (photoelectrolysis) systems for hydrogen production from sunlight and water, catalysts for the hydrogen and oxygen reactions, materials for advanced fuels cell membranes, and corrosion studies of fuel cell metal biopolar plates. Other work involves the study of electrode materials for high energy density lithium batteries and fundamental processes of charge transfer at semiconductor electrodes.

He has twice received the Midwestern Research Institute’s President’s Award for Exceptional Performance in Research. In addition, he has received the Hydrogen Technical Advisory Panel Award for Research Excellence, an Idaho State University Outstanding Achievement Award (2006), and six Outstanding Mentor Awards from the US department of Energy for his work with undergraduate students. He is the author or co-author of over 130 peer-reviewed publications in the areas of photoelectrochemistry, fuel cells, batteries, general electrochemistry and analytical chemistry. He is a Fellow of the Renewable and Sustainable Energy Institute, a joint institute between NREL and the University of Colorado, Boulder. He is also the co-Editor of the Journals of Renewable and Sustainable Energy, an AIP journal.
**NTU Researchers**

**Assistant Professor Joachim Loo Say Chye**  
Principal Investigator, Solar Fuels Laboratory

Dr Joachim Loo is currently an Assistant Professor in the School of Materials Science and Engineering, Nanyang Technological University (NTU). He graduated with a Bachelors (Hons) degree in Applied Science (Materials Engineering) and received his Ph.D. (as recipient of the A*STAR Graduate Scholarship) from NTU. After that, he was a Visiting Scientist in Mayo Clinic (MN, USA), working on the use of nanomaterials for bioimaging in cancer therapy, before joining NTU as a faculty member in 2006. His research interests include controlled drug delivery particulate systems, Drug-Eluting Balloons (DEB), and nanotoxicology.

He has published more than 45 international peer-reviewed journal and conference papers, and filed six filed patents in these research areas. In 2010, his research paper was featured as Research Profile in the journal Analytical Chemistry (Impact Factor: 5.2). He has often been invited as a reviewer for a number of premier journals, and serves on the International Editorial Review Board for International Journal of Biomaterials Research and Engineering (IJBRE). He has also been invited as guest speaker for several international conferences and by multi-national corporations, such as 3M.

Dr Loo is currently a Principal Investigator, as well as a collaborator, for several local and international research grants amounting to more than S$10M. He was also a consultant to several local and international companies, including Abbott Vascular (USA). He has been awarded four gold awards, one silver and one bronze in various research project competitions, and was also awarded the Outstanding Mentor Award for the Nanyang Research Programme. For his administrative contributions to NTU, he has recently been awarded the Service Recognition Award. Currently he is also the programme manager of the Solar Energy and Solar Fuel Centre under the Energy Research Institute at NTU (ERI@N), and the Principal Investigator of the NTU Solar Fuels Laboratory. For his outstanding contributions to the scientific community, he was nominated for the prestigious Singapore Youth Award in Science and Technology 2010. Dr. Joachim Loo is also currently serving as Secretary of the Materials Research Society of Singapore (MRS-S).

**Assistant Professor Lydia Wong**

Dr Lydia Wong received her Bachelors degree in Applied Science with Honors and Ph.D. in Materials Science and Engineering from NTU. She won the third prize of the Young Persons’ Lecture Competition in London in 2004 for her talk in strain relaxation of SiGe/Si heteroepitaxy. After completing her PhD, she worked as a Senior Engineer at the Technology Development Department of Chartered Semiconductor Manufacturing (now Global Foundries) in the area of advanced gate oxide technology. She was also a Visiting Scientist at Stanford University developing organic photovoltaic materials at the Department of Chemical Engineering. She is currently an Assistant Professor at the School of Materials Science and Engineering, NTU. Her research area includes development of functional semiconductor materials for nanoelectronics and energy harvesting devices.

**Assistant Professor Zhao Yang**

Dr Yang Zhao is currently an Assistant Professor in the School of Materials Science and Engineering, Nanyang Technological University, and runs a $10M CRP grant by the National Research Foundation of Singapore as its Principle Investigator. To date, he has co-authored more than 60 peer-reviewed, high-impact journal papers, and written two book chapters. Dr. Zhao was selected from the best of Chinese physics students to pursue PhD studies in the
US by the prestigious CUSPEA program sponsored by Nobel Laureate Tsung-Dao Lee. His Bachelor of Science degree was awarded by the Zhejiang University, and his PhD degree, University of California at San Diego.

Following a brief stay in the International Center for Theoretical Physics in Trieste, Italy, Dr. Zhao took up a postdoctoral appointment at the Rochester Theory Center (headed by Prof. Joseph Eberly) in University of Rochester, upstate New York, where he worked with Prof. Shaul Mukamel in the Chemistry department and Prof. Bob Knox in the Physics department. Prior to joining the Nanyang Technological University, he also held positions in the University of Hong Kong that include Research Assistant Professorship and Honorary Assistant Professorship.

**Assistant Professor Xue Can**

Dr Xue Can received his BS degree at University of Science and Technology of China (USTC), and completed his PhD study in 2007 with Prof. Chad Mirkin at Northwestern University (IL, USA).

In 2008, he received the prestigious Lee Kuan Yew Postdoctoral Fellowship, and became an assistant professor in November 2009. He has published over 15 high-impact (IF>6) scientific papers with more than 500 citations.