



Solar Impulse: An Energy Revolution!

Cutting-Edge Symposium with a Solar-Powered Airplane in the Backdrop

Symposium Abstract

Imagine flying an airplane day and night using only solar power!

We can do that today thanks to the imagination, ingenuity and collaboration of uncommon individuals: the pilots, partners and dynamic teams of the world's finest scientists and engineers.

On behalf of the Chemical Marketing and Economics Group (CM&E) of the American Chemical Society New York Section, we cordially invite CM&E and ACS members to attend the July 12 Symposium organized by Solvay in association with ACS in which you will meet the pioneers who made this energy revolution possible. Solar Impulse is a revolutionary aircraft that will conclude its historic journey across the USA in July to demonstrate that solar power can be used to fly around the clock for the first time in history. New York is the last stop before this engineering marvel returns to Switzerland. The next generation of Solar Impulse aircraft is to circumnavigate the Earth in 2015.

The birth of the Solar Impulse aircraft is an amazing feat of progress in sustainability and clean technology and this conference will highlight current and potential future areas of advancement within Solvay corporate Research and Innovation.

In the afternoon, there will be a series of technical talks by some of the top US researchers in their respective fields, followed by a discussion panel on Innovation for the Future. Topics include materials science, polymer science, organic electronics, polymer synthesis, biomedical materials, colloids, artificial photosynthesis, self-assembly, hydrogels and soft matter.

The symposium will conclude with a special recognition by CM&E to the Solar Impulse project leaders and sponsor, followed by remarks by Solvay's top management and a dynamic presentation by Bertrand Piccard and André Borschberg, who are the founders of this project and pilots of the Solar Impulse. Do not miss this epic day at JFK.

Panel

Matt Becker - Associate Professor, Department of Polymer Science - University of Akron
Bryan Coughlin - Professor, Polymer Science and Engineering - UMass Amherst
Remi Dreyfus - CNRS Researcher, Complex Assemblies of Soft Matter Lab (COMPASS)
Cherie Kagan - Professor, Department of Electrical and Systems Engineering and Materials Science and Engineering - University of Pennsylvania
Jennifer Lewis - Professor at the Wyss Institute - Harvard University
Lynn Loo - Chair in Engineering, Professor, Chemical and Biological Engineering; Associate Director, Andlinger Center for Energy and the Environment, Princeton University
Darrin Pochan - Professor, Materials Science and Engineering - University of Delaware

You may register only for the afternoon symposium or for the evening part of the event which includes reception and dinner or for the complete event. Compliments of Solvay. For those using the MTA, there will be a shuttle bus going from the JFK stop to the Hangar 19. For those driving there will be free parking next to Hangar 19.

ACS NY Section
CM&E

Sponsor



SOLVAY

Symposium Schedule

Location:

JFK Airport, Hangar 19
19 North Hangar Road
Queens, NY 11430

Event Times: (EDT)

1:00 pm - 6:00 pm
Symposium

6:00 pm - 8:00 pm
Reception & Dinner

Event Fees:

Compliments of Solvay.

Register at:

www.cmeacs.org

contact@cmeacs.org

(908) 542-0251

**Biographies – Symposium Speakers**

Matt Becker –Associate Professor, Department of Polymer Science – University of Akron - Professor Becker's Laboratory for Functional Biomaterials seeks to develop new materials and methods which stimulate and direct specific cellular functions. The multidisciplinary group works at the interface of chemistry, organic materials and medicine and focuses on developing chemical methods to tether peptides, proteins and growth factors to translationally-relevant materials. These materials include peptide and carbohydrate derivatized materials, which incorporate bio-functional species in a controlled manner, with the goal of influencing cell response.



Bryan Coughlin –Professor, Polymer Science and Engineering – UMass Amherst - His lab focuses on tailoring Chemical Functionality to Generate Functional Polymeric Materials. They strive, through development and adaptation of synthetic methods, to create new polymeric materials with properties suitable for a range of demanding applications. His lab's efforts can be sub-divided into four project areas: Ion Transport in Organic Materials, Novel Inorganic–Organic Hybrid Copolymers, Fire-Safe Polymers and Polymer Composites, Precisely Functionalized Polymers.



Remi Dreyfus – CNRS Researcher, Complex Assemblies of Soft Matter Lab (COMPASS: UMI 3254) – His research is at the interface of hydrodynamics, colloid science, and biological locomotion. He is currently performing research at Compass Lab. Compass is a unite mixte international (UMI) , which is a joint laboratory between CNRS, Solvay and UPenn. He has labs located in Bristol (PA) within the Solvay site and in Philadelphia at the Laboratory for Research on the Structure of Matter (LRSM) at U Penn. He focuses on three main areas of research: Water retention in model soil systems, Hyperuniformity of glassy colloidal materials, DNA coated colloids.



Cherie Kagan – Professor, Department of Electrical and Systems Engineering and Materials Science and Engineering - University of Pennsylvania – The Kagan lab explores the chemical and physical properties of molecular, supramolecular, and nanostructured materials and assemblies and their applications in electronic, optoelectronic, and sensing devices. The experiments in the Kagan lab provide a basis for understanding intermolecular, intramolecular, and interfacial (organic-inorganic) charge and excitonic transport and interactions. These insights guide the rational design of molecular and nanostructured devices from transistors to solar cells to photonics to chemical and biological sensors.



Jennifer Lewis – Professor at the Wyss Institute for Biologically Inspired Engineering, Harvard University – The Lewis lab studies 3-D printing, also known as additive manufacturing, the process of fabricating three-dimensional solid objects. The technique is used in a range of fields, from producing crowns in a dental lab to rapid prototyping of aerospace, automotive, and consumer goods. Her research group is able to create finely tailored structures with precise electronic, optical, mechanical, and chemical properties. Lewis' understanding of the chemistry and physics of soft materials enables her to design and manipulate various gels, polymers, and colloidal suspensions and create architectures that mimic those found in nature, such as bone, spider webs, or vascular networks.

About CM&E

Chemical Marketing & Economics is a topical group of the American Chemical Society (ACS) NY Section. ACS , founded in 1876, is the world's largest scientific society with over 160,000 members.

CM&E organizes monthly luncheons and webcasts in New York City where industry leaders present original research and cutting-edge outlooks on business, economy, and technology in energy, materials & life science.

The American Chemical Society's NY Section was the first group in ACS to give a National Prize. Since 1903 the Annual Nichols Award of ACS NY section has been given to 108 scientists; 16 of them have received a Nobel Prize in Chemistry.

2013 CM&E Board**Chair**

George Rodriguez

Program Chair

James M. Weatherall

Secretary

Charles Brumlik

Treasurer

Karin Bartels

Directors

Neil Burns

Chris Cerimele

David J. Deutsch

Rhoda Kriesel

Brian Orkin

Paul Pospisil

Rick Templeton

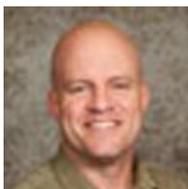
Associate Directors

David Ferber

Jake Zhu

**Biographies (continued)**

Lynn Loo – Theodora D. '78 & William H. Walton III '74 Chair in Engineering, Professor, Chemical and Biological Engineering; Associate Director, External Partnerships, Andlinger Center for Energy and the Environment, Princeton University - Her lab's research is in materials chemistry and physics of complex, soft materials such as electrically-active polymeric and molecular materials. They study processing-structure-property relationships for material synthesis with tailored properties aimed at technologies of low-cost, lightweight, mechanically flexible thin-film devices, such as organic transistors and solar cells.



Darrin Pochan – Professor, Materials Science and Engineering – University of Delaware - He is exploring vesicle, micelle and hydrogel formation in dilute aqueous systems of block polypeptides. This work is coupled with solid-state block polypeptide characterization and block polypeptide-protein blend morphology studies. He is studying the self-assembly of unique polymeric and organic-inorganic hybrid materials in bulk and for pattern formations in thin films. Techniques used include small and wide angle x-ray and neutron scattering, transmission and scanning electron microscopy, and atomic force microscopy.

Biographies – Symposium Closing Speakers

Jean-Pierre Clamadieu – CEO at Solvay – He is a graduate of the Ecole Nationale Supérieure des Mines of Paris and Ingénieur du Corps des Mines. He began his career in various positions within the French Civil Service, including the Ministry of Industry. In 1993, he joined the Rhône-Poulenc Group and held various executive positions. In 2003, he was appointed Chief Executive Officer of the Rhodia Group and in 2008, Chairman & Chief Executive Officer. With Solvay's acquisition of Rhodia, in September 2011, he became Vice-Chairman of the Executive Committee of Solvay and Chairman of Rhodia. Since May 2012, he has been Chairman of the Executive Committee and member of Solvay's Board of Directors.



Bertrand Piccard – Solar Impulse Project Leader and Pilot – Psychiatrist and Balloonist. Born into a dynasty of explorers and scientists who have conquered the heights and depths of our planet, Bertrand Piccard made the first ever non-stop round-the-world balloon flight. An internationally renowned psychiatrist, aeronaut and lecturer, chairman of the Winds of Hope charitable foundation, and a United Nations goodwill ambassador, he combines science and adventure in order to tackle some of the great challenges of our times. Aged 54, Bertrand Piccard is married to Michèle. He lives near Lausanne where he writes about his vision of the future.



André Borschberg – Solar Impulse Project Leader and Pilot – He is a Swiss businessman, pilot and co-founder of the Solar Impulse project. On July 7, 2010, he completed the first 24-hour solar powered flight setting records for the longest manned solar-powered flight, and the greatest height reached by a manned solar aircraft. Previously, he flew as a jet pilot in the Swiss Air Force. An engineer by education and a graduate of the MIT Sloan School of Management, André has solid experience in creating and managing companies. His passion for aviation and his interest in innovative solutions have led him to team up with Bertrand Piccard as CEO of Solar Impulse.

About Solar Impulse

Solar Impulse is a Swiss long-range solar powered aircraft project being undertaken at the École Polytechnique Fédérale de Lausanne. The project eventually hopes to achieve the first circumnavigation of the Earth in 2015 by a piloted fixed-wing aircraft using only solar power. The first aircraft is a single-seater monoplane, capable of taking off under its own power, and intended to remain airborne up to 36 hours. This aircraft first flew a 26-hour flight on 7–8 July 2010. In 2013 it is conducting a multi-stage flight across the USA.

About Solvay

Founded in 1863 by Ernest Solvay in Belgium, Solvay ranks in the top 10 chemical firms and generates over 90% of sales in businesses where it ranks among the top 3 globally. In 2012, 38% of Solvay's EUR 12.4 billion in net sales (EUR 2.1 billion in REBITDA) were in fast growing countries. Solvay has 29,100 employees worldwide and 111 industrial sites in 55 countries. It covers diversified end-markets such as consumer goods, construction, automotive, energy, water and environment and electronics. Solvay's strategy of sustainable and profitable growth is focused on investing in high value added activities and new products with low energy footprint.