Lenfest Center for Sustainable Energy
EARTH INSTITUTE | COLUMBIA UNIVERSITY

Risø DTU
National Laboratory for Sustainable Energy
Fuel Cells and Solid State Chemistry Division
& The Danish Hydrogen and Fuel Cell Academy

Sustainable Fuels from CO_2, H_2O, and Carbon-Free Energy

Tuesday May 4, 2010
Faculty House, President's Room Suite, Columbia University, New York, NY
West 116th Street between Amsterdam Avenue and Morningside Drive

What technologies can be used to recycle CO_2 into carbon-neutral liquid hydrocarbon fuels (synthetic gasoline, diesel, alcohols, etc) using renewable or nuclear energy? What is the state-of-the-art? At what prices can such fuels be produced? Can they compete against fossil fuels and biofuels?

Time	Presentation	Topic
9:30 am	**Welcome and Introduction** Klaus Lackner (*Columbia University*) and Mogens Mogensen (*Risø National Laboratory*)	
9:50 am	**Capture of Carbon Dioxide from Ambient Air for CO_2 Recycling** Klaus Lackner, *Ewing-Worzel Professor of Geophysics, Head of Dept of Earth & Environmental Engineering, and Director of the Lenfest Center of Sustainable Energy, Columbia University*	CO_2 capture
10:30 am	**Carbon Dioxide Capture Using Nanoparticle-based Ionic Materials** Alissa Park, *Lenfest Junior Professor in Applied Climate Science, and Associate Director, Lenfest Center for Sustainable Energy, Columbia University*	CO_2 capture
11:00 am	**The Columbia Energy Frontier Research Center: Toward Efficient and Inexpensive PV** Jim Yardley, *Professor, Department of Electrical Engineering, and Managing Director, Energy Frontier Research Center, Columbia University*	Photovoltaics
11:30 am	**Photochemical CO_2 Reduction: Current Status and Challenges** Etsuko Fujita, *Brookhaven National Lab*	Photochemical conversion
12:00 pm	**Lunch (to be served)**	
1:30 pm	**High Temperature Solar-driven Thermolysis of CO_2** Reed Jensen, *Los Alamos Solar Energy LLC*	Thermolytic H_2O/CO_2 splitting
2:00 pm	**Solar-driven H_2O/CO_2 Splitting via Thermochemical Cycles** Rich Diver, *Sandia National Lab*	Thermochemical H_2O/CO_2 splitting
2:30 pm	**Production of Synthetic Fuel by Electrolysis: Potential and Challenges** Mogens Mogensen, *Research Professor, and Director of Strategic Electrochemistry Research Center, Risø National Laboratory for Sustainable Energy, DTU, Denmark*	Electrolytic H_2O/CO_2 splitting
3:00 pm	**Production of Synthesis Gas by High Temperature Electrolysis of H_2O and CO_2** Carl Stoots, *Idaho National Lab*	Electrolytic H_2O/CO_2 splitting
3:30 pm	**Numerical Simulation of a High Pressure Water Electrolysis System** Masahiro Kawaji, *Professor, Dept of Mechanical Engineering, City College of New York*	Electrolysis
4:00 pm	**Solid Oxide Electrolysis Cells: Long-term Durability** Sune D. Ebbesen, *Scientist, Fuel Cells & Solid State Chemistry Division, Risø National Laboratory for Sustainable Energy, DTU, Roskilde, Denmark*	Electrolytic H_2O/CO_2 splitting
4:30 pm	**Recycling CO_2 by Electrolysis of H_2O and CO_2: Economics and Electrode Materials** Christopher Graves, *PhD Student, Columbia University, New York, New York*	Electrolytic H_2O/CO_2 splitting

This event is free, but RSVPs are required. To register, please email Carey Russell (crussell@ei.columbia.edu) or visit:
http://calendar.columbia.edu/sundial/webapi/get.php?vt=detail&id=40808&con=standalone&br=ei_brand