

## Workshop Program

# Capture and conversion of CO<sub>2</sub> into sustainable hydrocarbon fuels

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Workshop, Thursday & Friday April 14 & 15, 2011

Hotel Comwell, Roskilde, Denmark

### Day 1 – April 14<sup>th</sup>

<u>Time</u>	<u>Event</u>
8:30	<b>Coffee</b>
9:00	<b>Welcome and Introduction</b> Søren Linderoth, Professor, Head of Fuel Cell and Solid State Chemistry Division, <i>Risø National Laboratory for Sustainable Energy, DTU, Denmark</i>
9:20	<b>Routes to Synthetic Fuels</b> Mogens Mogensen, <i>Research Professor, and Director of Strategic Electrochemistry Research Center, Risø National Laboratory for Sustainable Energy, DTU, Denmark</i>
10:00	<b>Closing the Fuel Cycle: Air Capture of Carbon Dioxide</b> Klaus Lackner, <i>Ewing-Worzel Professor of Geophysics, Head of Earth &amp; Environmental Engineering Dept., and Director of Lenfest Center of Sustainable Energy, Columbia University, USA</i>
10:40	<b>Coffee break</b>
11:00	<b>US Nuclear Powered High Temperature Electrolysis: Past, Present, and Future</b> Carl Stoots, <i>Research Engineer, Thermal Fluids and Heat Transfer Dept., Idaho National Laboratory, USA</i>
11:40	<b>Performance and Durability of Solid Oxide Electrolysis Cells</b> Sune D. Ebbesen, <i>Scientist, Fuel Cells &amp; Solid State Chemistry Division, Risø National Laboratory for Sustainable Energy, DTU, Denmark</i>
12:20	<b>Synthetic Fuel Production by Recycling CO<sub>2</sub> via Electrolysis</b> John Bøggild Hansen, <i>Senior Scientist and Advisor to Chairman, Haldor Topsøe A/S, Lyngby, Denmark</i>
13:00	<b>Lunch (to be served)</b>
14:30	<b>Solar-Driven Thermochemical Dissociation of CO<sub>2</sub> and H<sub>2</sub>O using Non-stoichiometric Ceria</b> Sossina Haile, <i>Professor of Materials Science and of Chemical Engineering, California Institute of Technology, USA</i>
15:10	<b>Solar Thermal Electrochemical Photo (STEP) Carbon Capture and Fuel Production</b> Stuart Licht, <i>GW Professor of Chemistry, George Washington University, USA</i>
15:50	<b>CO<sub>2</sub> capture from air: developments from a high-temperature to a low-temperature cyclic process</b> Jan Wurzbacher <sup>1</sup> , Aldo Steinfeld <sup>2</sup> , <sup>1</sup> Doctoral student, <sup>2</sup> Prof. of Renewable Energy Carriers, <i>Inst. of Energy Technology, ETH Zurich, and Head of Solar Technology Laboratory, Paul Scherrer Institute, Switzerland</i>
16:30	<b>Poster session</b>
-18:00	
19:00	<b>Dinner</b>

## Day 2 – April 15<sup>th</sup>

Time   Event

8:30   **Coffee**

9:00   **Breaking the biomass bottleneck of the fossil free society**

Henrik Wenzel, *Professor, Institute for Chemical, Bio and Environmental Technology, University of Southern Denmark, Odense, Denmark*

9:40   **Learning curves for fuel cells and hydrogen technologies**

Bob van der Zwaan, *Senior Scientist, Energy research Centre of the Netherlands; Senior Scientist, Lenfest Center for Sustainable Energy, Columbia University, USA; Adjunct Professor of International Relations, Johns Hopkins University, USA*

10:20   **Reversible electrochemical power plants for 100% renewable electricity and fuels**

Christopher Graves, *Post-doc, Fuel Cells & Solid State Chemistry Division, Risø National Laboratory for Sustainable Energy, DTU, Denmark*

11:00   **Coffee break**

11:20   **Synthetic fuel production using pressurized solid oxide electrolysis cells**

Søren Højgaard Jensen, *Scientist, Fuel Cells & Solid State Chemistry Division, Risø National Laboratory for Sustainable Energy, DTU, Denmark*

12:00   **Conversion of CO<sub>2</sub> to CO by Electrolysis of Molten Lithium Carbonate**

Igor Lubomirsky, *Associate Professor, Department of Materials and Interfaces, Weizmann Institute of Science, Israel*

12:40   **Lunch (to be served)**

14:00   **Artificial photosynthesis – solar fuels: current status and future prospects**

Leroy Cronin, *Professor, Department Chemistry, University of Glasgow, UK*

14:40   **Photoelectrocatalytic water and CO<sub>2</sub> splitting – potential and problems**

Søren Dahl, *Professor, Director of CASE, DTU Physics, Technical University of Denmark*

15:20   **Final comments**

15:30   **Lab tour**