

Join us for the workshop

## Manufacturing Green Fuels from Renewable Energy

at DTU Energy Conversion, Risø Campus, Denmark.

### Topics:

The workshop includes topics such as sustainable carbon resources, CO<sub>2</sub> capture, high temperature electrolysis, CO<sub>2</sub> reduction at the nano-scale and highlighting key issues for reaching 100% renewable energy in our energy systems.

### Concept:

The workshop will feature a combination of invited speakers – among them J. Bae (KAIST), K. Lackner (Arizona State University), J. Nørskov (Stanford University), A. Park (Columbia University), M.-F. Han (Tsinghua University) N. Cai (Tsinghua University), A. Steinfeld (ETH) - and contributed poster sessions, panel discussion and informal networking.

### Important dates

Sign up:	Opens Jan. 1 <sup>st</sup> – Closes March 30 <sup>th</sup>
Poster Abstract:	Opens Jan. 1 <sup>st</sup> – Closes March 14 <sup>th</sup>
Workshop:	April 14 <sup>th</sup> – 16 <sup>th</sup> 2015

Please forward this e-mail and attached file to people in your professional network.

Kind regards,

Mogens Mogensen ([momo@dtu.dk](mailto:momo@dtu.dk)) and Anne Hauch ([hauc@dtu.dk](mailto:hauc@dtu.dk))



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Tuesday – April 14<sup>th</sup> 2015

Time	Title	Speaker	Affiliation/e-mail
8.30-9.25	Registration, coffee and bread		
	<b>Chairs: Mogens B. Mogensen &amp; Anne Hauch</b>		
9.25-9.40	Welcome	Mogens B. Mogensen	DTU ( <a href="mailto:momo@dtu.dk">momo@dtu.dk</a> )
9.40-9.45	Opening remarks	Anne Hauch	DTU ( <a href="mailto:hauc@dtu.dk">hauc@dtu.dk</a> )
9.45-10.15	Carbon recycling – possibilities and challenges (confirmed)	Peter Vang Hendriksen	DTU ( <a href="mailto:pvhe@dtu.dk">pvhe@dtu.dk</a> )
<b>10.15-12.45</b>	<b>CO<sub>2</sub> capture. Chairs: Chris Graves and Ningsheng Cai</b>		
10.15-10.45	CO <sub>2</sub> capture from ambient air (confirmed)	Klaus Lackner	Arizona State University ( <a href="mailto:kslackner@gmail.com">kslackner@gmail.com</a> )
10.45-11.15	Coffee break		
11.15-11.45	Optimal materials for CO <sub>2</sub> capture from various sources (confirmed)	Peter Styring	University of Sheffield ( <a href="mailto:p.styring@sheffield.ac.uk">p.styring@sheffield.ac.uk</a> )
11.45-12.15	Novel Liquid-like Nanoscale Hybrid Materials for Combined CO <sub>2</sub> Capture and Conversion (confirmed)	Alissa Park	Columbia University <a href="mailto:apark@ei.columbia.edu">apark@ei.columbia.edu</a>
12.15-12.45	CO <sub>2</sub> capture and conversion to liquid hydrocarbon fuels by solar thermochemical redox cycling (confirmed)	Aldo Steinfeld	ETH ( <a href="mailto:aldo.steinfeld@ethz.ch">aldo.steinfeld@ethz.ch</a> )
<b>12.45-14.30</b>	<b>Lunch and posters</b>		
14.30-15.00	Status of Climeworks CO <sub>2</sub> capture technology (confirmed)	Jan Wurzbacher	Climeworks ( <a href="mailto:jan.wurzbacher@climeworks.com">jan.wurzbacher@climeworks.com</a> )
<b>15.00-16.00</b>	<b>Biomass – a carbon resource. Chairs: Sune Ebbesen &amp; Joongmyeon Bae</b>		
15.00-15.30	From biomass to SNG (confirmed)	John Bøgild Hansen	Haldor Topsøe A/S ( <a href="mailto:jbh@topsoe.dk">jbh@topsoe.dk</a> )
15.30-16.00	Carbon & biomass demands and limitations in renewable energy system designs (confirmed)	Henrik Wenzel	SDU ( <a href="mailto:henrik.wenzel@kbm.sdu.dk">henrik.wenzel@kbm.sdu.dk</a> )
16.00-17.30	Lab tours and social event		

Theme: Carbon recycling – possibilities and challenges

## Wednesday – April 15<sup>th</sup> 2015

Time	Title	Speaker	Affiliation/e-mail
8.00-8.30	Coffee and bread		
8.30-9.00	Electrolysis - Technologies, Operating schemes and techno-economic assessment (confirmed)	Chris Graves	DTU ( <a href="mailto:cgra@dtu.dk">cgra@dtu.dk</a> )
<b>9.00-10.30</b>	<b><i>Electrolysis technologies – at lower temperatures. Chairs: Peter Holtappels and Aldo Steinfeld</i></b>		
9.00-9.30	High temp. alkaline electrolysis - Progress and potential (confirmed)	Christodoulos Chatzichristodoulou	DTU ( <a href="mailto:ccha@dtu.dk">ccha@dtu.dk</a> )
9.30-10.00	Proton conductors for electrolysis (confirmed)	Qingfeng Li	DTU ( <a href="mailto:qfli@dtu.dk">qfli@dtu.dk</a> )
10.00-10.30	Coffee break		
<b>10.30-17.15</b>	<b><i>High temperature electrolysis – SOEC. Chairs: Min-Fang Han and Peter Vang Hendriksen</i></b>		
10.30-11.00	SOEC – state of the art performance, durability and challenges (confirmed)	Sune Ebbesen	DTU ( <a href="mailto:sueb@dtu.dk">sueb@dtu.dk</a> )
11.00-11.30	Long-term durability of SOEC (confirmed)	Josef Schefold	EIFER ( <a href="mailto:Josef.Schefold@eifer.org">Josef.Schefold@eifer.org</a> )
11.30-12.00	Durable and robust SOEC for future grid balancing applications (confirmed)	Ming Chen	DTU ( <a href="mailto:mine@dtu.dk">mine@dtu.dk</a> )
12.00-12.30	Stack and System flexibility and durability (confirmed)	Christian von Olshausen	Sunfire ( <a href="mailto:christian.vonolshausen@sunfire.de">christian.vonolshausen@sunfire.de</a> )
<b>12.30-14.15</b>	<b>Lunch and posters</b>		
14.15-14.45	Pressurized Operation of SOECs (confirmed)	Søren H. Jensen	DTU ( <a href="mailto:shjj@dtu.dk">shjj@dtu.dk</a> )
14.45-15.15	Correlating microstructure and performance (confirmed)	Nigel Brandon	Imperial College
15.15-15.45	SOC electrode performance optimization and degradation mechanisms (confirmed)	Scott Barnett	Northwestern University ( <a href="mailto:s-barnett@northwestern.edu">s-barnett@northwestern.edu</a> )
15.45-16.15	Coffee break		
16.15-16.45	Electrolysis – status and possibilities in China (confirmed)	Ningsheng Cai	Tsinghua University ( <a href="mailto:cains@tsinghua.edu.cn">cains@tsinghua.edu.cn</a> )
16.45-17.15	Electrolysis – status and possibilities in Korea (confirmed)	Joongmyeon Bae	KAIST ( <a href="mailto:jmbae@kaist.edu">jmbae@kaist.edu</a> )
17.15-18.00	<i>Organic Solar Cells – from fundamental aspects to technological break-through</i>	Hanne Lauridsen	DTU – The polymer solar cell group
19.00-	Dinner at Comwell ( <a href="http://www.comwellroskilde.dk">www.comwellroskilde.dk</a> )		

Theme: Manufacturing of green fuels

## Thursday – April 16<sup>th</sup> 2015

Time	Title	Speaker	Affiliation/e-mail
8.30-9.00	Coffee and bread		
9.00-9.30	The potential for atomic scale science on the road to a technological breakthrough for synthetic fuel production (confirmed)	Jens Nørskov /Karen Chan	Stanford University( <a href="mailto:norskov@stanford.edu">norskov@stanford.edu</a> / <a href="mailto:chank@stanford.edu">chank@stanford.edu</a> )
<b>9.30-11.00</b>	<b><i>CO<sub>2</sub> reduction on nano-scale – theoretical and experimental.</i></b> <b><i>Chairs: Heine A. Hansen and Klaus Lackner</i></b>		
9.30-10.00	Overview of electrochemical CO <sub>2</sub> reduction (confirmed)	Ib Chorkendorff	DTU ( <a href="mailto:lbchork@fysik.dtu.dk">lbchork@fysik.dtu.dk</a> )
10.00-10.30	Integration of operational conditions in the design of nanoparticle catalyst for CO <sub>2</sub> reduction (confirmed)	Tejs Vegge	DTU ( <a href="mailto:teve@dtu.dk">teve@dtu.dk</a> )
10.30-11.00	Coffee break		
11.00-11.30	CO <sub>2</sub> electro-reduction - Simulations of the solid-liquid interface (confirmed)	Egill Skulason	University of Iceland ( <a href="mailto:egillsk@hi.is">egillsk@hi.is</a> )
11.30-12.00	Making more efficient catalysts for the conversion of CO <sub>2</sub> to CH <sub>3</sub> OH (confirmed)	Malte Behrens	Universität Duisburg-Essen ( <a href="mailto:malte.behrens@uni-due.de">malte.behrens@uni-due.de</a> )
12.00-12.30	CO <sub>2</sub> reduction – electro-catalysts on the nano-scale (to be determined)		
<b>12.30-13.45</b>	<b>Lunch (poster session)</b>		
<b>13.45-15.15</b>	<b><i>Towards systems and applications.</i></b> <b><i>Chairs: Christian von Olshausen &amp; Ming Chen</i></b>		
13.45-14.15	Electrolysis and synthetic fuel production – from a Danish system point of view (confirmed)	Allan Schröder Pedersen	DTU ( <a href="mailto:alpe@dtu.dk">alpe@dtu.dk</a> )
14.15-14.45	Which systems are needed to reach 100 % renewable energy in the US? Status and visions (confirmed)	Eric Wachsman	University of Maryland
14.45-15.15	The low carbon strategy in Chinese energy system (confirmed)	Min-Fang Han	Tsinghua University ( <a href="mailto:hanminfang@sina.com">hanminfang@sina.com</a> )
15.15-15.45	Which systems are needed to reach 100 % renewable energy in Korea? (to be determined)		
15.45-16.00	Coffee break		
16.00-17.00	Panel discussion and closing of the workshop – moderator: Mogens B. Mogensen	All	

Theme: How to proceed? – From atomic scale calculations to system integration