

# Carbon Capture and Storage

## Faraday Discussion



**Monday 18 July**

11:30	Registration, Tea and Coffee	
12:00	Lunch	
12:45	<b>Welcome and Introductions</b> Paul Fennell, <i>Chair of Scientific Committee</i>	
12:55	<b>Outline of Discussion Format</b> Carla Pegoraro and Simon Rankmore, <i>Royal Society of Chemistry Publishing Editors</i>	
13:00	<b>Introductory Lecture</b> Berend Smit <i>Ecole Polytechnique Fédérale de Lausanne (EPFL), Switzerland</i>	
	<b>Session 1 CCS: A technology for now</b> (Session Chair: Paul Fennell )	
14:00	<b>Post-combustion carbon dioxide capture cost reduction to 2030 and beyond</b> <u>Jon Gibbins</u> , Bruce Adderley, Jeremy Carey, Mathieu Lucquiaud and Richard Smith <i>UK CCS Research Centre, UK</i>	<b>Paper 10857</b>
14:05	<b>Pilot plant test of the advanced flash stripper for CO<sub>2</sub> capture</b> <u>Gary Rochelle</u> , Yu-Jeng Lin and Eric Chen <i>The University of Texas at Austin, USA</i>	<b>Paper 10818</b>
14:10	<b>A low-energy chilled ammonia process exploiting controlled solid formation for post – combustion CO<sub>2</sub> capture</b> <u>Daniel Sutter</u> , Matteo Gazzani and Marco Mazzotti <i>ETH Zurich, Switzerland</i>	<b>Paper 10822</b>
14:15	Discussion	
15:30	Afternoon tea	
16:00	<b>The development of effective CaO-based CO<sub>2</sub> sorbents via a sacrificial templating technique</b> <u>Andac Armutlulu</u> , Muhammad A. Naeem, Sung Min Kim, Martin Broda and Christoph R. Müller <i>ETH Zurich, Switzerland</i>	<b>Paper 10869</b>
16:05	<b>Effect of SO<sub>2</sub> and steam on CO<sub>2</sub> capture performance of biomass-templated calcium aluminate pellets</b> <u>Maria Erans</u> , Theodore Beisheim, Vasilije Manovic, Michal Jeremias, Kumar Patchigolla, Heiko Dieter, Lunbo Duan and Edward J Anthony <i>Cranfield University, UK</i>	<b>Paper 11026</b>
16:10	<b>Phase evolution, characterization and performance of cement prepared in oxy-fuel atmosphere</b> <u>Liya Zheng</u> , Thomas Hills and Paul Fennell <i>Imperial College London, UK</i>	<b>Paper 10846</b>
16:15	Discussion	
17:30	Lightning poster presentations (by invitation of the scientific committee)	
17:45	Poster Session and Wine Reception	
19:15	Dinner	

**Tuesday 19 July**

	<b>Session 2 CCS: A technology for the future</b> (Session Chair: Camille Petit )	
09:00	<b>On the potential of phase-change adsorbents for CO<sub>2</sub> capture by temperature swing adsorption</b> <u>Lisa Joss</u> , Max Hefti, Zoran Bjelobrk and Marco Mazzotti <i>ETH Zürich, Switzerland</i>	<b>Paper 10841</b>
09:05	<b>Accelerated degradation of MOFs under flue gas conditions</b> <u>Stefano Brandani</u> , E.Mangano, J. Kahr and P.A Wright <i>The University of Edinburgh, UK</i>	<b>Paper 10817</b>
09:10	<b>A rate equation theory for pore size distribution of calcined CaCO<sub>3</sub> in calcium looping</b> <u>P.T Liang</u> , Zhenshan Li and N.S Cai <i>Tsinghua University</i>	<b>Paper 10813</b>
09:15	<b>In situ studies of materials for high-temperature CO<sub>2</sub> capture and storage</b> <u>Matthew Dunstan</u> , Michael Gaultois, Phoebe Allan, Matthew Tucker, Wen Liu, Belen Gonzalez, Serena Maugeri, Martin Dove, Dami Taiwo, Paul Shearing, Stuart Scott, John Dennis and Clare Grey <i>University of Cambridge, UK</i>	<b>Paper 10835</b>
09:20	Discussion	
10:30	Morning Tea	
11:00	<b>On the potential for BECCS efficiency improvement through heat recovery from both post-combustion and oxycombustion facilities</b> <u>Niall MacDowell</u> and M. Fajardy <i>Imperial College London, UK</i>	<b>Paper 10812</b>
11:05	<b>Dual phase high-temperature membranes for CO<sub>2</sub> separation – performance assessment in post- and pre-combustion processes</b> <u>Rahul Anantharaman</u> , Thijs Peters, Wen Xing, Marie-Laure Fontaine and Rune Bredesen <i>SINTEF Energy Research, Norway</i>	<b>Paper 10896</b>
11:10	<b>Microencapsulation of advanced solvents for carbon capture</b> <u>Joshuah Stolaroff</u> , Congwang Ye, Du Nguyen, James Oakdale, Sarah Baker, William Smith, Saraf Nawar, Megan Smith, William Bourcier, Eric Duoss, David Weitz and Roger Aines <i>Lawrence Livermore National Laboratory, USA</i>	<b>Paper 10858</b>
11:15	<b>A novel methodology for assessing the environmental sustainability of ionic liquids used for CO<sub>2</sub> capture</b> <u>Rosa Cuellar-Franca</u> , Pelayo Garcia-Gutierrez, S.F Rebecca Taylor, Christopher Hardacre and Adisa Azapagic <i>The University of Manchester, UK</i>	<b>Paper 10893</b>
11:20	Discussion	
13:00	Lunch	
	<b>Session 3 Modelling: Molecules to mega-scale</b> (Session Chair: Amparo Galindo )	
14.15	<b>On the use of molecular-based thermodynamic models to assess the performance of solvents for CO<sub>2</sub> capture processes: monoethanolamine solutions</b> <u>George Jackson</u> , Charles V. Brand, Edward Graham, Javier Rodríguez, Amparo Galindo and Claire S. Adjiman <i>Imperial College London, UK</i>	<b>Paper 10819</b>
14.20	<b>Cutting the cost of carbon capture: a case for carbon capture and utilization</b> <u>Lennart Joos</u> , Veronique Van Speybroeck, Johanna Huck and Berend	<b>Paper 10873</b>

	Smit <i>Ghent University, Belgium</i>	
14.25	<b>Molecular simulation of the thermophysical properties and phase behaviour of impure CO<sub>2</sub> relevant to CCS</b> <u>Richard S. Graham</u> , Alexander J. Cresswell, Richard J. Wheatley and Richard D. Wilkinson <i>University of Nottingham, UK</i>	<b>Paper 10828</b>
14.30	Discussion	
15.45	Afternoon Tea	
16.15	<b>Techno-economic investigation of a chemical looping combustion based power plant</b> <u>Raffaella Ocone</u> , Graeme White and Rosario Porrazzo <i>Heriot-Watt University, UK</i>	<b>Paper 10816</b>
16.20	<b>Absorber modelling for NGCC carbon capture with aqueous piperazine</b> <u>Yue Zhang</u> , Brice Freeman and Gary Rochelle <i>The University of Texas at Austin, USA</i>	<b>Paper 10847</b>
16.25	<b>Mechanisms of CO<sub>2</sub> capture in ionic liquids: a computational perspective</b> <u>Robert G. Bell</u> , Maxime Mercy and Nora H. de Leeuw <i>University College London, UK</i>	<b>Paper 10902</b>
16.30	Discussion	
17.45	Close of sessions	
18:30	Pre-Dinner Drinks – Dining Room, The Edge	
19:00	Conference Dinner – Dining Room, The Edge	

### Wednesday 20 July

	<b>Session 4: End use and disposal of CO<sub>2</sub> - Storage or utilisation?</b> (Session Chair: Christoph Mueller)	
09:30	<b>Fast and selective separation of Carbon Dioxide from dilute streams by pressure swing adsorption using solid ionic liquids</b> <u>Peter Styring</u> , G.R.M Dowson, D.G Reed, J-M.Bellas and C. Charalambous <i>The University of Sheffield, UK</i>	<b>Paper 10814</b>
09:35	<b>Kinetic studies of CO<sub>2</sub> methanation over a Ni/g -Al<sub>2</sub>O<sub>3</sub> catalyst</b> <u>John Dennis</u> , Jin Yang Lim and Ross Hubble <i>University of Cambridge, UK</i>	<b>Paper 10868</b>
09:40	<b>Kinetics of carbonate mineral dissolution in CO<sub>2</sub>-acidified brines at storage reservoir conditions</b> <u>Martin Trusler</u> , Cheng Peng, Benaiah Anabaraonye, John Crawshaw and Geoffrey Maitland <i>Imperial College London, UK</i>	<b>Paper 10900</b>
09:45	Discussion	
11:00	Morning Tea	
11:30	<b>Concluding Remarks</b> Geoffrey Maitland <i>Imperial College London, UK</i>	
12:15	<b>Acknowledgements</b>	
12:25	<b>Close of meeting and Lunch</b>	

Presenting authors are indicated in the programme by an underline. The affiliation is for the presenting author. If the presenting author of your paper has changed since abstract selection please email [events@rsc.org](mailto:events@rsc.org). Please note that this is a draft programme and timings may change.