



IEAGHG Information Paper; 2014-IP1 IP15: 3rd International Conference on Chemical Looping

The 3rd International Conference on Chemical Looping took place from 9th to 11th of September at Chalmers University of Technology in Gothenburg, Sweden. Interest in the conference series has grown steadily since the first meeting in Lyon in 2010, and this year's event gathered more than 170 attendees.



1 Carl Linderholm opening the 3rd CLC Conference.

The conference provided a full three-day programme with 74 oral presentations, 36 poster presentations, a panel discussion, lab visits and social events. The technical sessions were organised in two parallel streams covering everything from in-detail lab-scale research over modelling to pilot plant operations. Next to chemical looping combustion (CLC), the sessions also covered chemical looping reforming (CLR) and gasification (CLG) technologies.

The Scientific Committee gave away awards for the best poster and paper of the conference. Mohammad Ramezani from University of Newcastle received the best poster award for his work on a calcium looping process providing CO₂ to greenhouses. The best paper award went to Kun Wang from Huazhong University for the investigation of sulphur behaviour in CLOU (chemical looping with oxygen uncoupling).



2 Group photo of delegates at the conference venue at Chalmers University.

The panel discussion focussed on the future of CLC and included the following panellists: John Dennis (University of Cambridge), JoAnn Lighty (NSF/University of Utah), Juan Adánez (ICB-CSIC), Tobias Mattisson (Chalmers University), Gareth Williams (Johnson Matthey), Corinne Béal (Alstom) and myself, acting as moderator. The main questions were about where the future research focus should lie and how we can promote CLC in relation to other CO₂ capture technologies, such as post-combustion capture (PCC) with conventional amine solutions, which are also making steady progress. The conclusions from the technical sessions were that CLC technology progresses steadily as well and challenges, e.g. in finding suitable oxygen carriers, can be overcome. It was apparent that more techno-economic data will be necessary to put CLC into perspective with other CCS technologies. Although CLC is catching up fast, those other technologies are more mature. It was consensus among the panellists that the biggest barrier to CLC development at the moment are the low CO₂ price, thus providing no incentives to take action, and the public opposition to CCS technologies in some places. However, use of biomass in CLC/CLG applications might be able to facilitate development if supportive policies are in place. Although there are still challenges remaining, we can be optimistic about CLC, as the process starts from a much better baseline, with regards to thermodynamics/energy penalty, than many conventional PCC technologies.

The conference dinner took place at the Universeum in Gothenburg, where delegates had the opportunity to explore an indoor rainforest and aquarium. Afterwards they were able to enjoy the performance of Prof Anders Lyngfelt, playing some of his sought-after climate change songs.



3 Delegates during the conference dinner at Universeum.

Selected papers from the conference will soon be published in a special issue of “Journal of Applied Energy”. For more information about this year’s conference, such as the agenda, please visit chemical-looping2014.com.

The next conference will be hosted by Prof Laihong Shen at Southeast University in China in 2016.

Many thanks to Chalmers University for organising such an excellent event and to all organisations below for their support.



All photographs courtesy of Jesper Aronsson and Jan-Olof Yxell.

Jasmin Kemper
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