FAST CARD Newsletter

FASTCARD - FAST industrialisation by CAtalysts Research and Development

No. 1 – April 2014

FASTCARD

kick-off 27-29 January in Oslo

The new EU FP7 funded project FASTCARD, focusing on biomass conversion into advanced biofuels through selected key catalytic steps, had its first meeting in a snowy Oslo 27-29 January 2014. In this meeting, all in all 43 participants from 9 different countries within Europe were gathered to kick off this 4-year long project. The meeting resulted in detailed work plans for the next months as well as valuable team/relations building.

Also attending the meeting was the respective Project Officer (PO) and Project Technical officer (PTA) from the EU commission. The project officer underlined the importance of the FASTCARD project for the EU's activities in this area. The PO has responsibility for two other projects that have been financed under the same call and these together were encouraged to establish links within defined areas.

Photo: Sivakanesar Luxsacumar

1th row, from the left: Stavros Theofanidis (Ghent University), Michaela Klotz (Saint-Gobain), Elisabeth Tangstad (SINTEF), Ilona Kaandorp (ECN), Bram Van der Drift (ECN), Rune Lødeng (SINTEF), Duncan Akporiaye (SINTEF), Michael Stöcker (SINTEF), Debra Jones (Johnson Matthey), Sue Ellis (Johnson Matthey), Joris Thybaut (Ghent University), Ruben Miravalles Gutierrez (Repsol SA), Joffrey Huve (CNRS), Letizia Bua (ENI S.p.A.), Alessandra d'Arminio Monforte (ENI S.p.A.)

2nd row, from the left: José Guillermo Rivera de la Cruz (Ghent University), Daria Otyuskaya (Ghent University), Edgar Jordan (Grace GmbH), Stephen Poulston (Johnson Matthey), Ralf Bergstraesser (Grace GmbH), Vladimir Galvita (Ghent University), Joginder Fagura (EC), Sven-Ove Andell (EC), Andrew Steele (Johnson Matthey), David Farrusseng (CNRS), Peter Ellis (Johnson Matthey), Raf Roelant (PDC), Tove L. Hønstad (SINTEF), Eivor M. Onsum (SINTEF), Bert van de Beld (B.T.G.), Vadim Yakovlev (Boreskov Institute of Catalysis), Magnus Rønning (NTNU), Guy B. Marin (Ghent University), Yvonne Traa (Universität Stuttgart), Hans Keuken (PDC), Yves Schuurman (CNRS), Elias Klemm (Universität Stuttgart), Stephan Wellach (Grace GmbH), Caroline Tardivat (Saint-Gobain), Jean-Pierre Pieterse (ECN), Robbie Venderbosch (B.T.G.), Claude Mirodatos (CNRS)

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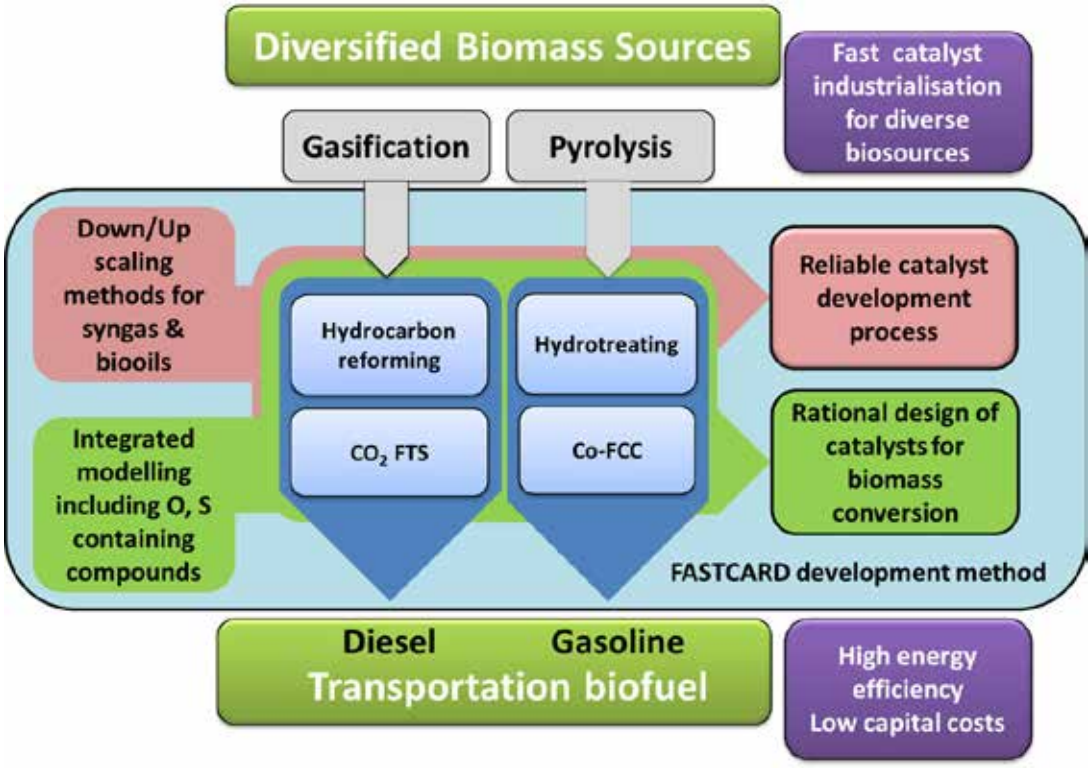
The FASTCARD project aims at achieving faster industrial implementation of biomass conversion into advanced biofuels in Europe by developing novel rational design of nano-catalysts, and industrially relevant up- and down-scaling methodologies. The key catalytic steps targeted comprise hydrocarbon reforming, CO2 FTS, hydrotreating and co-Fluidized Catalytic Cracking.

This includes:

- Demonstration both at laboratory and relevant pilot level, with real feeds
- Significant reduction in the time for development to industrial scale
- Establishment of robust models for predicting pilot level performance for faster adaptation of the processes for diverse feedstock characteristics
- Development of a Downscaling/Upscaling approach to decrease catalyst development time
- Development of powerful modeling tools adapted to bio-feedstock
- Development of new nano-catalysts for the four catalytic processes addressed by the project

The FASTCARD consortium consists of SINTEF (Norway), CNRS (France), ENI S.p.A. (Italy), Johnson Matthey PLC (United Kingdom), Boreskov Insitute of Catalysis (Russia), Grace GmbH & CO KG (Germany), Universität Stuttgart (Germany), ECN (Stichting Energieonderzoek Centrum Nederland) (Netherlands), Universiteit Gent (Belgium), B.T.G. Biomass Technology Group BV (Netherlands), Process Design Center BV (Netherlands), NTNU (Norway), Saint-Gobain (France) and Repsol SA (Spain).



Tour to the Borregaard biorefinery

A key goal of the FASTCARD project is addressing the rapid scale-up and implementation of nano-catalyst based processes at a pilot scale. An ambition of the project is to have regular tours and visits to related industrial/pilot plant facilities to underline the importance of the step from labscale to pilot scale in the development of new bio-based processes to biofuels.

One of the pioneering biorefinery industries in Europe is Borregaard a Norwegian company with its site close to the Norwegian/Swedish border at Sarpsborg. This site is ideally located with respect to the demanding logistics necessary for handling wood-based biomass. Borregaard has one of the world's most advanced and sustainable biorefineries, and by using natural, sustainable raw materials, Borregaard produces advanced and environmentally friendly biochemicals, biomaterials and bioethanol that can replace oil-based products. Borregaard also holds strong positions within ingredients and fine chemicals.

A tour to the Borregaard biorefinery in Sarpsborg was organised as part of the FASTCARD kick-off meeting. The excursion comprised both an introduction to Borregaard, lunch and a tour of the extensive complex of Borregaard with our guide and host, School Liaison Endre Steinbru (picture). A highlight of the tour was the new BALI demo-plant where the cellulose fibres in biomass are converted to sugars that can be used for the production of second generation bioethanol, while other components of the biomass (lignin) become advanced biochemicals. The key stage in Borregaard's BALI process is the processing of the wood biomass to produce a relatively pure lignin phase. Borregaard is now reviewing the scale up of the BALI process to commercial scale.

Photo: Endre Steinbru

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