

Catalysis Center for Energy Innovation GUEST WEBINAR SPEAKER

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10:00 AM ■ 322 ISE Lab



Dr. Irantzu Sadaba

Haldor Topsøe A/S, New Business R&D
Denmark
irsz@topsoe.dk

Biography: Irantzu Sadaba received her PhD degree in 2012 at the Institute of Catalysis and Petrochemistry (Spanish National Research Council). Part of her research was conducted at Colorado School of Mines (USA), Center for Research in Ceramics and Composite Materials (Portugal) and Technical University of Denmark (Denmark). After a 6 month-post-doc contract at the Centre for Catalysis and Sustainable Chemistry (Technical University of Denmark), she started as Research Scientist at Haldor Topsøe A/S, where she has worked for the last 5 years. Her current work focusses on the development of new processes and catalysts for the production of chemicals from sugars. In particular, focus is set on zeolites and ordered-mesoporous materials with Lewis acid sites for the cascade conversion of sugars into polymer building blocks.

“Promising Production of Bio-Based Monomers From Catalytic Conversion Of Sugar”

Abstract: Conversion of sugar streams into valuable chemicals is one of the main challenges for future biorefineries. Catalytic conversion has a clear advantage versus fermentative transformations regarding the productivity of the catalyst. This means that the amount of desired product formed per gram of catalyst is extensively higher than in fermentation, which has a clear advantage in large scale industrial processes. However, selectivity of catalytic conversions is usually lower and the stability of solid catalysts in liquid media is also a weak point that need to be addressed carefully. In order to develop competitive and industrially relevant catalytic processes, all these issues need to be overcome. A good example of a process where catalysis can offer a good advantage over fermentative transformation is the production of lactic acid. It has been reported recently that methyl lactate can be efficiently produced by catalytic conversion of sugars over a Sn-modified zeolite in methanol [1]. Methyl lactate is a very attractive bio-monomer in the context of the utilization of renewable resources for the production of plastics. Other side products formed in the reaction have also potential applications in the bio-polymers industry. This study is aimed at giving an overview of the possibilities of production of bio-monomers from sugars via catalytic conversion, as shown in Figure 1.

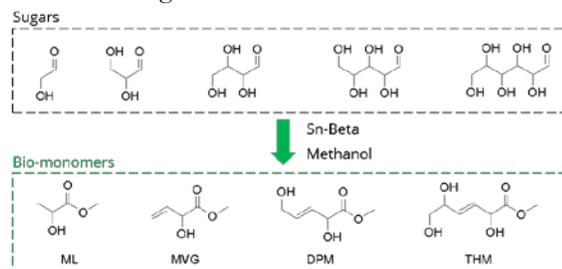


Figure 1. Production of bio-derived monomers from catalytic conversion of sugars with Sn-Beta in methanol.

[1] M.S. Holm, S. Saravanamurugan, E. Taarning, *Science* **2010**, 328 pp 602-605.

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