

## ENERGYPOLIS SEMINAR

10. 12. 2015, 16:00 - 17:00, ENERGYPOLIS Sion, 4<sup>th</sup> floor, Seminar room

### Preparation of well-defined Ir(I)-NHC based heterogeneous catalyst for functional olefin hydrogenation

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At the upcoming talk, the preparation as well as the catalytic performance of well-defined Ir(I)-NHC based catalytic material will be presented.

Alkene hydrogenation is a key step in many bulk and fine chemicals production processes. Among the large number of homogeneous and heterogeneous catalysts, promising Iridium (I) organometallic complexes were prepared since the discovery of the well-known Crabtree's catalyst,  $[\text{Ir}(\text{COD})(\text{py})(\text{PCy}_3)]\text{BF}_4$ , [1] to address selectivity issues in asymmetric hydrogenation [2] or hydrogenation of highly hindered tetrasubstituted olefins [3]. However, the industrial use of Ir organometallic complexes as catalysts is limited by their fast decomposition leading to the formation of highly stable and inactive polynuclear iridium hydride-bridged complexes. [4] The goal of this work was to isolate the active Ir(I)-NHC species onto the solid support in order to prevent such bimolecular deactivation processes.

#### References:

- [1] R.H. Crabtree, Acc. Chem. Rev. 12 (1979) 331
- [2] J.J. Verendel, O. Pamies, D. Montserrat, P.G. Andersson, Chem. Rev. 114 (2014) 2130.
- [3] B. Wustenberg, A. Pfaltz, Adv. Synth. Catal 350 (2008) 174.
- [4].a) Xu, Y.; Mingos, D. M.; Brown, J. M., Chem. Commun. 2008, (2), 199-201; b) Xu, Y.; Celik, M. A.; Thompson, A. L.; Cai, H.; Yurtsever, M.; Odell, B.; Green, J. C.; Mingos, D. M.; Brown, J. M., Angew. Chem. Int. Ed. 2009, 48 (3), 582-585; c) S. P. Smidt, A. Pfaltz, E. Martínez-Viviente, P. S. Pregosin, A. Albinati, Organometallics 2003, 22, 1000-1009



#### CV: Mrs. Iuliia Romanenko

Born 29. July 1989 in Kiev, Ukraine. Iuliia Romanenko got her Bachelor degree in Analytical Chemistry at the University of Kiev (2010). Her Master degree she obtained in the faculty of High Technologies at the same university (2012). From 2011-2012 she made a 6 month internship in the Laboratory of Surface Organometallic Chemistry, in Claude Bernard University of Lyon, France. In 2012 she joined the same lab as a PhD student in the field of catalytic materials preparation.