



University
of
St Andrews

St Andrews Chemistry @ 200

A celebration of chemical research

Organometallics

Lecture theatre C at 2:30 pm on Wednesday 6th October

14:30 Welcome - Prof J. Derek Woollins

14:35 Prof Ernesto Carmona, University of Seville

"Stoichiometric and Catalytic H-X Bond Activation (X=H, C, Si): Development of a Catalytic Synthesis of Deuterated and Tritiated Hydrosilanes"

15:30 Dr Bob Tooze, Sasol Technology

"Catalysis on the Edge"

16:00 Dr Catherine Cazin, University of St Andrews

"Mixed N-Heterocyclic Carbene/Phosphite Ruthenium Complexes: Towards a New Generation of Olefin Metathesis Catalysts"

16:30 Wine Reception (Common room)

/abstracts

Stoichiometric and Catalytic H-X Bond Activation (X=H, C, Si): Development of a Catalytic Synthesis of Deuterated and Tritiated Hydrosilanes

Professor Ernesto Carmona

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I shall divide this lecture into two parts. In the first, I shall discuss some iridium mediated C-H activations involving pyridine and substituted pyridines as organic substrates, to form N-heterocyclic carbenes. The isomerisation requires pyridine C-H activation and occurs on Ir(III) centres stabilized by an auxiliary hydrotris(pyrazolyl)borate ligand.

Then, in the second part I will deal with some C-H, H-H and Si-H bond activation reactions promoted by cationic ($\eta^5\text{-C}_5\text{Me}_5$)M(III) units (M= Rh, Ir) that contain a metallated PMeXyl₂ (or related) phosphine ligand. Some compounds of this type exhibit a remarkable reactivity toward H₂ and hydrosilanes that permits development of a very efficient catalytic synthesis of deuterated and tritiated silanes.

Catalysis on the Edge

Dr Robert P. Tooze

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The title is an attempt to capture the unique position that Sasol Technology UK occupies; a satellite laboratory of a global Company, co-located in an academic environment carrying out homogeneous catalysis to upgrade co-products of a synthetic fuel business and more recently heterogeneous catalysis building on a molecular approach. Examples of oligomerisation, dimerisation and metathesis of alkenes using homogeneous catalysts and new materials for Fischer-Tropsch catalysis will be presented.

Mixed N-Heterocyclic Carbene/Phosphite Ruthenium Complexes: Towards a New Generation of Olefin Metathesis Catalysts

Dr Catherine S. J. Cazin

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The area of olefin metathesis continues to be a very active field of research. In this context, very little work has been reported on ligand synergy. We have recently developed a novel ruthenium-based system displaying high activity and unique structural features that facilitate the metathesis of challenging substrates. The system will be presented and its features discussed.