

RSC – Mid Southern Counties Scientific Seminar

Prof. Andrew Weller
RSC Frankland Award

Wednesday 15th March 2017

14:00

Building 27 Room 2001 (Chemistry)

University of Southampton, Southampton, SO17 1BJ

Prof. Andrew Weller (University of Oxford, UK) received the Frankland Award for his significant and innovative contributions to the synthesis of, and catalysis with, organometallic complexes containing C-H or B-H sigma interactions, in particular transition metal alkane complexes and the dehydrocoupling of amine-boranes

Solid–State Molecular Organometallic Synthesis and Catalysis

Organometallic Chemistry is dominated by structures, transformations and catalysis that occur in the solution phase. However, this is not always the most desirable phase to operate in. For example: when catalysis requires separation of catalyst and substrates/products, selectivity in transformations that is promoted by solid–state effects is required, when solvent reacts unfavorably with the metal complex or when the host–guest properties of crystalline lattices encourage the formation of complexes that are difficult to prepare in solution phase. This talk will outline recent investigations that explore the use of cationic group 9 phosphine complexes in Solid–State Molecular Organometallic Synthesis and Catalysis (SMOM-systems). In particular the synthesis, solid–state characterisation (by single crystal X-ray diffraction, power diffraction, solid–state NMR spectroscopy) and onward reactivity of transition metal alkane complexes will be discussed. It will be shown that by careful manipulation of the steric and electronic environment around the metal centre, and control of the thermodynamics/kinetics leading to onward reaction, a number of alkane coordination complexes can be readily synthesized, some of which show remarkable stability on the solid–state. Their use in C–H activation processes and catalysis is discussed.

For further information please contact

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