

***"Challenges in Catalysis; Integrating Mechanism and Synthesis"***

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Catalysis of organic reactions by transition metal complexes has been one of the great success stories for synthesis, and indeed for Chemistry over the last fifty years. Advances are driven by insight, perseverance or even by chance, and normally the detailed understanding of catalytic reactions lags some way behind their development. There is then an iterative process; synthesis provides the stimulus and then mechanism provides the insights for improved synthesis.

So how can one develop mechanistic understanding – what are the tools, and what methods are in current vogue? The lecture will attempt to answer this question through examples from recent work requiring directed synthesis, NMR and other spectroscopy, kinetic and computational approaches, all aimed at the non-specialist. The main emphasis will be on reactions of direct preparative or of general interest.