

Internal Webinar

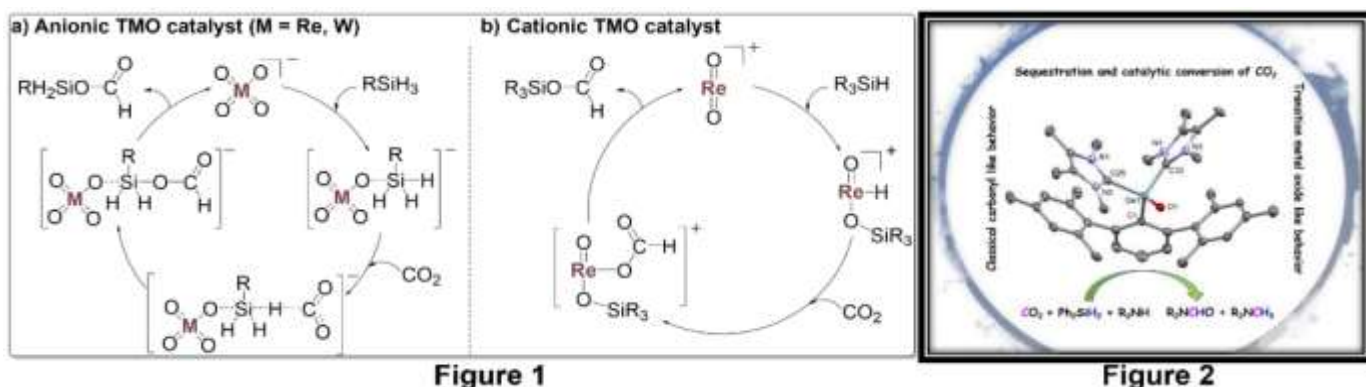
N-Heterocyclic Carbene-Stabilised Germa-acylium Ion: Reactivity and Utility in Catalytic CO₂ Functionalisations

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Precious transition metals (TM) dominate the fields of catalysis due to their redox flexibility. However, such metals are toxic and expensive. Thus, moulding compounds derived from the chemically benign p-block elements through molecular design to interact with industrially relevant molecules in a 'TM-like' fashion represents an exciting fundamental chemical challenge offering significant potential environmental impact.

Transition metal oxides (TMOs) in high oxidation states have recently shown potential application in reductive CO₂ derivatisation (Figure 1). But, can we mimic such reactivity of TMs with main group metal oxide? Indeed, we can. In this talk, I will present the isolation and reactivity of the germanium analogue of acylium ion, the so-called germa-acylium ion [R-Ge=O]⁺, and its TMOs-like behaviour in reversible CO₂ activation and subsequent conversion to value-added products (Figure 2).



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