

INORGANIC SEMINAR

Successes and Tangents In Designing Metal-Ion Cooperativity

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Metal-ion redox cooperativity is a central theme in small molecule binding and activation at metal surfaces, cluster cofactors in biology, and various homogeneous synthetic catalysts. Although readily identified when present, the criteria that allow for and control cooperative reactivity are incompletely understood, and partly hindering the design and use of cheaper $3d$ metals in catalysts for multi-electron redox transformations. Our ongoing efforts to specifically design this cooperativity into transition metal complexes for the activation of small molecules. Results on the reduction of carbon dioxide to formate and oxalate – the latter product access by a proposed ligand centered process – as well as dinitrogen activation at triand dinuclear metal complexes will be presented.



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