

Designing Catalysis: From Biomimetic to Bioinspired Approaches

New Directions in Metallo-Porphyrin Oxidation Chemistry

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Abstract: The presentation will outline our exploration of bioinspired approaches towards environmentally benign electrophilic chlorination reactions.^[1] Drawing inspiration from heme-dependent chloroperoxidase (CPO),^[2] we aim to develop methodologies that realize the oxidative umpolung of chloride to its electrophilic congener Cl^+ . Originally targeting the formation of transient Fe-OCI species, as found in CPO, our studies led us to explore alternative mechanistic pathways reliant on direct participation of the ligand environment of iron porphyrin complexes.^[3] The traversing between biomimetic and bioinspired approaches shadows these developments and a brief definition of these terms in the context of bioinorganic chemistry will be provided.^[4] Furthermore, related applications of iron porphyrin complexes for water remediation will be discussed.^[5]

References:

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