Framework materials with complex properties for organic photoredox catalysis and solid-state ionic conductivity

Abstract: The ability to design and impose specific molecular traits for targeted properties in inorganic solid-state materials is one of the many challenges in materials science. In our research, we focus our efforts in the design of organic and inorganic molecular building blocks with well-defined properties to be incorporated in solid-state materials in the form of metal-organic and covalent-organic frameworks (MOFs and COFs, respectively). These molecular components provide the frameworks the ability to perform complex processes relevant to efficient use of energy, such as visible light organic photoredox catalysis, and ionic charge transport. This seminar will describe the approaches followed in our research group to design and prepare advanced titanium-based MOF heterogeneous photoredox catalysts for their use in organic synthesis, and in the photoreduction of carbon dioxide. Our research also includes the study of crystallographically aligned COFs for their use as solid-state lithium-ion electrolytes for applications in solid-state batteries.

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Cram Conference Room, 3440 Mol Sci
4:30 pm

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