

Self-Assembly of Molecular Oxide Clusters for Catalytic and Energy Applications

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Polyoxometalates (POMs) are discrete molecular metal oxides with a definite structure and size. Due to their compositional, structural, and functional diversity, they have drawn great attention from both academia and industry. Their potential applications include catalysis, optoelectronics, and biomedical applications such as drug delivery and bioimaging. However, despite their huge potential, their practical application is very limited due to the lack of efforts to assemble or hybridize POMs with other functional materials. In this talk, I will present our recent work on hybridization of POMs with various functional materials such as small organic molecules, polymers, and inorganic materials by self-assembly approaches and on their potential applications, especially in photocatalytic water splitting for the production of solar fuels such as hydrogen.