

Special Issue

Recent Progress in Synthesis, Properties, and Applications of Polyoxometalates and Their Nanocrystals

Message from the Guest Editors

Polyoxometalates (POMs) are a class of polynuclear inorganic cluster compounds formed through the covalent bonding of transition metals (such as molybdenum, tungsten, and vanadium) with oxygen atoms. These compounds exhibit highly symmetrical structures and diverse chemical properties, making them widely applicable in areas such as catalysis, materials science, and biomedicine. Over the past few decades, there has been growing scientific interest in the discovery of various types of nanocrystals and their promising applications. One reason for this interest is that nanocrystals exhibit novel, distinctive, and advantageous physical, chemical, and biological properties compared to conventional materials. Parameters that are central to these characteristics include nanostructure shape, particle size, surface charge, and surface area, as these factors directly influence the characteristics and performance of nanocrystals. Current trends in the literature indicate a significant gap in research specifically addressing the production and formulation of polyoxometalates and their nanocrystals, thereby presenting opportunities for future advanced applications.

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