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Coordination Complexes: Synthesis, Characterization and Application

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Message from the Guest Editors

Coordination polymers solid-state are structures constructed from metal ions (commonly d- or f- block metals) and bridging ligands, extending in one (1D), two (2D) or three dimensions (3D). The resulting networks are strongly influenced by the employed organic ligand(s) through the number, nature and position of the donor atoms, as well as the stereochemical preferences of the metal ions. When possessing voids able to accommodate guest molecules, two- and three-dimensional polymers are often referred to as metal-organic networks (MOFs). Following Robson's seminal paper in the early 1990s, significant synthetic developments have been made that allowed isolation of specific structural topologies. The judicious selection of assembly units allows fine-tuning of properties or even the combination of multiple properties within the material. Thus, coordination polymers have promising applications in fields ranging from adsorption and separation processes to catalysis, sensor technologies, luminescence, magnetism, drug delivery, proton conductivity, non-linear optics, etc.



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