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Inorganic molecular materials

Foreword

Molecular inorganic materials represent an important area of research in materials science, with applications in nanotechnology, optoelectronics and photonics, quantum information processing and data storage, catalysis, medicine, etc. Coordination chemistry, supramolecular chemistry, and crystal engineering join their tools and efforts in order to obtain materials with desired structures and, consequently, technologically useful properties.

In the last two decades, new families of compounds with exciting properties and promising applications emerged, such as:

- metal-organic frameworks (MOFs) that can be used as catalysts or hosts for various organic or inorganic molecules;
- molecule-based magnets, especially low-dimensional systems (molecular nanomagnets: single molecule magnets and single chain magnets);
- molecular conductors and superconductors;
- metal-based nonlinear optical materials;
- metallomesogens.

Most of these topics are illustrated by the articles collected in this special issue of the *Comptes Rendus de l'Académie des sciences (Chimie)*: Janiak and his co-workers, as well as Ruiz-Perez et al. report on new MOFs and their properties; novel magnetic compounds, including multi-functional nanomagnets, are presented by Costes, Sutter, Martins, Cangussu, Lloret, Julve, Plass, Verdaguer, Gouzerh, Colacio, Brechin and their co-workers; Fourmigue, Decurtins, and Avarvari present their recent results in the chemistry of dithiolenes and tetrathiafulvalene complexes; new luminescent organo-metallic complexes are reported by Silvestru et al.

I would like to thank all the contributors for their beautiful papers and stimulating results, and I hope that the readers will enjoy this collection of papers devoted to inorganic molecular materials.

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