Special Issue

Molecular Magnetism of Transition Metal Complexes

Message from the Guest Editor

Molecular magnetism has become an important part in coordination chemistry. Single-molecule magnets (SMMs), mononuclear SMMs, single-ion magnets (SIMs), and single-chain magnets (SCMs) are compounds exhibiting slow relaxation of magnetization based on a pure molecular origin. Currently, this class of complexes can only operate up to 80 K, and is driven by their promising application in ultradense information storage, quantum computing and spintronics. Thus, it is necessary to tune the magnetic anisotropy of complexated metal ions by a rational ligand design and to understand all parameters governing the process of relaxation of magnetization. Other important sub-class of molecular magnetism represents complexes showing spin crossover (SCO), where spin transition occurs between high- and low-spin state, usually induced by different external constraints (e.g., temperature, pressure or light). It is a great pleasure for me to invite you to participate in this Special Issue. Recent developments and advances concerning SMMs, SIMs, SCMs, tuning of magnetic anisotropy, relaxation processes in molecular magnets, and new SCO systems.

Guest Editor

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Metallic materials play a vital role in the economic life of modern societies; contributions are sought on fresh developments that enhance our understanding of the fundamental aspects related to the relationships between processing, properties and microstructure – disciplines in the metallurgical field ranging from processing, mechanical behavior, phase transitions and microstructural evolution, nanostructures, as well as unique metallic properties – inspire general and scholarly interest among the scientific community.

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