Special Issue

Lanthanide Single-Molecule Magnets

Message from the Guest Editor

Single-molecule magnets (SMMs) are molecular compounds capable of retaining a specific direction of magnetization in the absence of external magnetic fields. Most of the recent milestones in the drive toward SMMs capable of functioning at ambient temperatures can be attributed to coordination complexes of lanthanide ions. The discovery of a dysprosium metallocene SMM functioning at liquid-nitrogen temperature in 2018 sets the current state-of-the-art in the field. Since then, many advances have been made in synthetic approaches, characterization methods, and theoretical models, and new high-temperature SMMs will most likely emerge in the future. This Special Issue aims to collect research and review contributions focusing on the current efforts toward lanthanide SMMs with higher operational temperatures and improved magnetic functionality. An important feature of SMM research is the synergistic relationship between practical synthetic work, experimental characterization, and quantum-chemical calculations; thus, we invite you to contribute your research or review articles focusing on any aspect of the research on lanthanide SMMs.

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