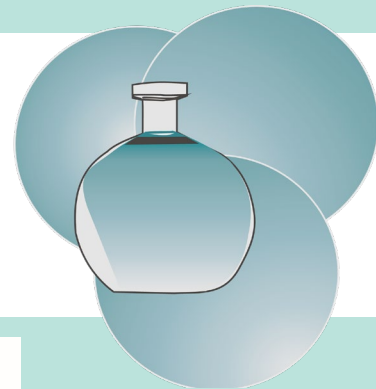


Fakultät für Naturwissenschaften
Institut für Chemie



lädt ein

gemeinsam mit der Gesellschaft
Deutscher Chemiker
zum



Vortrag
von Herrn

**Prof. Muralee
Murugesu**

*Department of Chemistry and
Biomolecular Science*

University of Ottawa

**“Synthetic
Methodologies for
Developing
Lanthanide-Based
Single-Molecule
Magnets”**

am: 10. Juli 2025

um: 16:00 Uhr

WO: im Raum 1/232

Gäste sind herzlich willkommen!

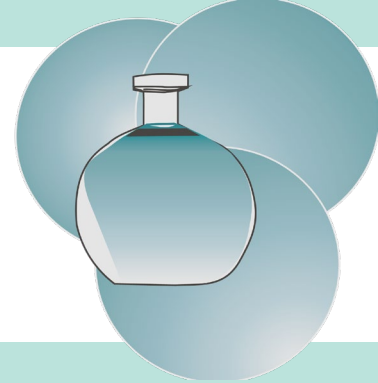


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Synthetic Methodologies for Developing Lanthanide-Based Single-Molecule Magnets

Molecules that exhibit the super-paramagnet-like property of slow magnetization relaxation and thus behave as magnets below their magnetic blocking temperature. Single-Molecule Magnets (SMMs) are promising candidates for molecular electronics such as high-density memory storage and quantum computers. Yet, the design of high-performance SMMs has been an ongoing challenge for the last three decades. Low-coordinate lanthanide complexes with strong magnetic anisotropy could afford high-performance SMMs but are challenging to synthesize. Now, through ligand design, a near-linear pseudo-two-coordinate Yb(III), Eu(II) complexes that exhibits slow magnetic relaxation are reported.^{1,2} The complex has a large ground-state splitting arising from the crystal field imposed by the ligands. These results represent an important step towards SMMs with record blocking temperatures.

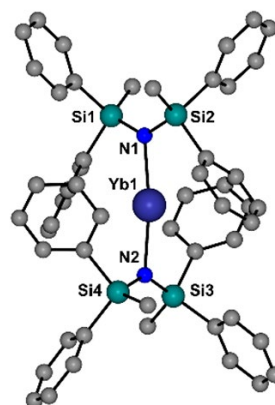


Figure 1. Two-coordinate molecular magnets

- [1] Errulat, D.; Harriman, K. L. M.; Gállico, D. A.; Kitos, A. A.; Mansikkamäki, A.; Murugesu, M* "Slow relaxation of the magnetization in a formally two-coordinate 4f complex" *Nature Chem.*, **2023**, *15*, 1100–1107.
- [2] Errulat, D.; Harriman, K. L. M.; Gállico, D. A.; Salerno, E.; van Tol, J.; Rouzières, M.; Mansikkamäki, A.; Hill, S.;* Clérac, R.;* Murugesu, M.* "Slow Magnetic Relaxation in a Europium(II) Complex". *Nature Comm.* **2024**, *15*, 30102