

RESEARCH BREMEN

The POMLab

ThePOMLab has a long tradition in the synthesis and structural characterization of discrete polyoxometalates (POMs). Their physicochemical properties in areas such as catalysis, magnetism, electrochemistry, and biomedicine are also investigated (partially in collaboration). We are particularly interested in d- and f-block metal-containing heteropolytungstates as well as polyoxo-noble-metalates, in particular polyoxopalladates (POPs). Academic as well as industrial projects are being investigated. Some research highlights are the discovery of (i) polyoxopalladates in 2008 (P13As8), (ii) polyoxoaurates in 2010 (Au4As40), and (iii) transition metal-containing derivatives of the wheel-shaped P 8W48 wheel in 2005 (Cu20P8W48).



Contact

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Available techniques

Multinuclear NMR, UV-Vis, AA, GC, GC-MS, HPLC, electrochemistry, single-crystal /powder XRD, FT-IR, TGA-DSC, physisorption, steel autoclaves, fixed-bed reactor, microwave reactor, glove box.

PUBLICATIONS

Sundar, A. et al. Highly Shielded Peroxo-Cerium(IV)-Containing Polyoxometalate: Synthesis, Structure, and Oxidative Studies *Chemistry Europe* **2025**, *3*, e202500082. [Read Online]

Siby, V. et al. Organophosphonate- and dimethylarsinate-functionalized hexamolybdates(V) and their solution and gas phase properties Inorg. Chem. Front. 2025, 12, 3166-3178. [Read Online]

Pal, A.et al. Fluorinated Arylarsonate-Containing Polyoxomolybdates: pH-Dependent Formation of Mo6 vs Mo12 Species and Their Solution Properties *Inorg. Chem.* **2024**, *63*, 18838-18846. [Read Online]

Bhattacharya, S. et al. Discrete, Cationic Palladium(II)-Oxo Clusters via f-Metal Ion Incorporation and their Macrocyclic Host-Guest Interactions with Sulfonatocalixarenes *Angew. Chem. Int. Ed.* **2022**, 61, e202203114. [Read Online]

Yang, P.; Kortz, U. Discovery and Evolution of Polyoxopalladates. *Acc. Chem. Res.* **2018**, 51, 15991608. [Read Online]

Izarova, N. V.; Pope, M. T.; Kortz, U. Noble Metals in Polyoxometalates. *Angew. Chem. Int. Ed.* **2012**, *51*, 9492-9510. [Read Online]

Mal, S. S.; Kortz, U. The Wheel-Shaped Cu20 Tungstophosphate [Cu20Cl(OH) 24(H2O)12(P8W48O184)]$^{25-}$ Ion. Angew. Chem. Int. Ed. **2005**, 44, 3777-3780. [Read Online]