



11. Oktober 2024 | 15 Uhr | Hörsaal 4

Novel metal-free systems for bond activation and catalysis: A computational and synthetic study

We will present our work on the synthesis of novel metal-free systems, in particular borane-based frustrated Lewis pairs, developed for the activation of strong chemical bonds and metallomimetic catalysis. Key applications, including the hydrogenation of alkynes and catalytic allylation reactions, will be discussed. Additionally, we will introduce preliminary studies on the use of main group catalysts for hydrogen storage applications. Our experimental findings are complemented by computational studies, which will also be covered.



Prof. Dr. Urs Gellrich

leitet seit August 2024
das Fachgebiet Organische Chemie (130b)
im Institut für Chemie.



Feedstocks from water, waste and sunlight through artificial photosynthesis

The solar-driven conversion of abundant resources into chemical feedstocks aims to provide raw materials for a clean industry without fossil fuels. Using waste as a resource (e.g. CO₂), this approach can simultaneously mitigate pollution and provide sustainable feedstocks. We will show how synthetic catalysts and natural enzymes can be integrated with nanostructured materials to address the key challenges of artificial photosynthesis – efficiency, selectivity and stability – towards generating green hydrogen and organic platform chemicals.



Prof. Dr. Moritz Kühnel

leitet seit Sommersemester 2024 das
Fachgebiet Anorganische Chemie (130a)
und ist geschäftsführender Direktor
des Instituts für Chemie.

