Area A

Symposium A4

Materials for catalysis and porous materials		
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Abstract

This symposium will discuss recent advances related to porous materials and materials for heterogeneous catalysis (i.e. thermal, photo-, electrocatalysis). These materials are of key importance for many current and future industrial applications, including the synthesis of chemicals, purification and separation technologies as well as the conversion and storage of renewable energy. For instance, the ability to harness sunlight for the conversion of abundant materials, such as water and CO_2, into useful chemicals and fuels has the potential to revolutionise the field of green chemistry and pave the way toward a more sustainable way of life. Some of currently most studied materials involve carbon-nitride/nanocarbons, inorganic/inorganic and inorganic/organic hybrids, quantum dots and 2D heterostructures. Tailormade micro/mesoporous materials constitute another popular class of materials that offer large surface areas, tuneable pore structures and surface functionalities as well multivariant chemical/electronic framework properties (e.g. MOFs, COFs, zeolites) for use as thermally stable catalyst supports, hosts for drug delivery, flexible membranes for separation and storage, and as functional compounds in electronics.

This symposium aims to discuss the state-of-the-art research in this multidisciplinary field. It highlights new materials design strategies and fundamental concepts as well as mechanistic insights from experiment and theory, including reactant diffusion and adsorption, charge separation/transfer and reaction steps and pathways.

Targeted topics include, but are not limited to:
- Synthesis of new materials for catalysis (e.g. MOFs, COFs, zeolites, 2D heterostructures..)
- Novel design strategies for hierarchically porous materials
- In-situ/operando methods and mechanistic studies in catalysis
- Dynamics of charge formation/separation/transfer at solid-solid and solid-liquid interfaces
- Structure-property-performance relationships
- Catalytic conversion of light to chemicals (e.g. hydrogen, solar fuel, artificial photosynthesis)
- Environmental applications (e.g. separation, purification, photocatalytic degradation)