Polymeric Materials for Advanced Catalysis

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The PoMACat investigates on cross-linked resins of different texture and on microgels as catalytic materials. Our research includes:

- tuning of hydro- and lipophilicity of polymeric materials to solvent or substrate compatibility in catalytic reactions
- solid acid and bifunctional catalysts for the production and transformation of biorefinery platform substances;
- supported metal catalysts for the direct synthesis of hydrogen peroxide and oxidation of alcohols;
- development of “in-operando” methods of XAFS characterization of solid catalysts under (gas)-liquid-solid conditions.

- *Influence of Metal Precursors and Reduction Protocols on the Chloride-Free Preparation of Catalysts for the Direct Synthesis of Hydrogen Peroxide without Selectivity Enhancers*, ChemCatChem, **2016**, 8, 1564–1574.
- *The distinct role of the flexible polymer matrix in catalytic conversions over immobilised nanoparticles*, RSC Advances, **2015**, 5, 56181–56188.
- *In Situ X-ray Absorption Fine Structure Spectroscopy of a Palladium Catalyst for the Direct Synthesis of Hydrogen Peroxide: Leaching and Reduction of the Metal Phase in the Presence of Bromide Ions,* ChemCatChem, **2015**, 7, 3712–3718.
- *Dry- and swollen-state morphology of novel high surface area polymers,* Microporous and Mesoporous Materials, **2014**, 185, 26–29.
- *Resin-Based Catalysts for the Hydrogenolysis of Glycerol to Propylene Glycol,* Top. Catal., **2013**, 56, 822–830.