

Priority Programme

“Material Synthesis near Room Temperature”



Project Description – Project Proposal

Synthesis of novel porous coordination polymers from structured and functionalized ionic liquid media

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Summary of proposal

We propose a research project on the synthesis of novel porous coordination polymers (Metal-Organic Framework, MOF) from ionic liquids. The ionic liquid has a threefold role. It serves as a precursor for the MOF synthesis, as template and as solvent. In the second funding period, the focus will be on the template effect. For this, we will focus on the synthesis of liquid crystalline and chiral ionic liquids. The resulting new MOF materials will be characterized and the relation between structural variation of the IL and the structure of the MOF will be evaluated. Moreover, we want to optimize the synthesis of the MOF regarding the sustainability of the process. We focus on the alternative forms of energy input and the reduction or substitution of non-sustainable solvents. Thus, we aim to use sonification not only to reduce synthesis temperature but also to investigate the influence of the synthesis conditions on the phase and structure of the MOFs form. It is anticipated that the use of ILs as linker precursors under influence of sonification will result in the preferred formation of the kinetically-favored phase.