Macromolecular Chemistry & Catalysis

Bernhard Rieger

Catalytic Precision Polymerization for Responsive Materials

Main Group Elements and Lanthanides for precise polymer microstructures: responsive surfaces, targeted drug delivery nanobots & biodegradable PHB

ASSB (all solid state batteries): Novel polymers as conducting separators - on the way to high capacity ASSBs

Transition Metal Catalysis @ Circular Economy: Ultrahigh molecular weight polyolefines - the search for perfect order & societal responsibility

Artificial Intelligence: Catalytically programmed functional nano-objects

Silicon Nanocomposites for (Opto)Electronic Applications

Inorganic nanoparticles for polymer composites - from nanomaterials to functional devices (international graduate school “ATUMS”, DFG: IRTG 2022)

Low-valent Organo-Silicon Compounds

Can silicon afford a transition-metal-type catalysis? Novel, noble-metal-free crosslinking protocols for polysiloxanes

CO_2-Utilization (Polymers & Photocatalysis)

Ultrafast catalysis for polycarbonates and polyurethanes. Multinuclear metal complexes enable the photoreduction of CO_2