Technical Chemistry
Olaf Hinrichsen

From Pellet Scale to Reactor Design

The Hinrichsen group tackles complex problems arising in the interface of science and engineering. This comprises several dimensions in scale: starting from particle design and surface reactions, also macroscopic effects like heat and mass transfer are considered as well as the performance of entire reactors and processes.

Current research focuses on new solutions for energy supply (methanation) and lower olefins production (MTO, ODH), on reactor technologies (fixed bed, fluidized bed, spinning disc) and new catalyst production methods (3D printing). Topics include catalyst synthesis and characterization, measurement and modeling of kinetics or coupling of reaction and transport effects. Moreover, computational fluid dynamics is applied to simulate reactive flows, fluid dynamics and heat transfer.