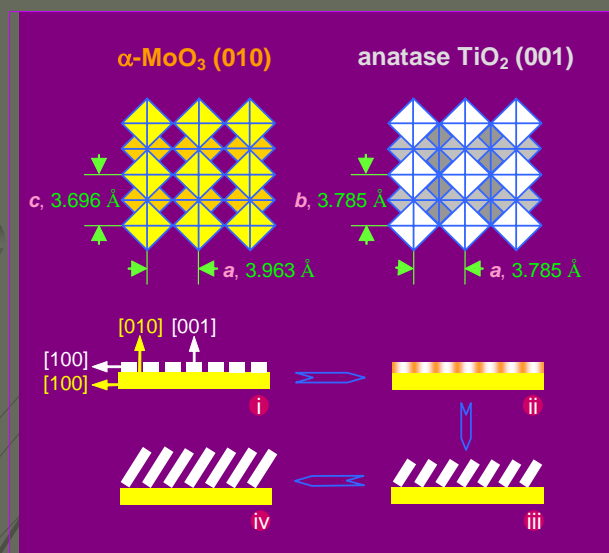


Nanocatalyst Devices

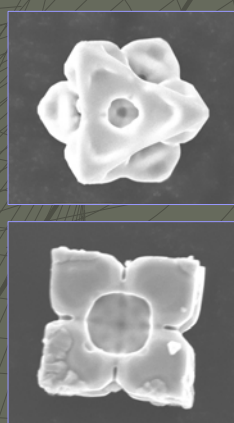
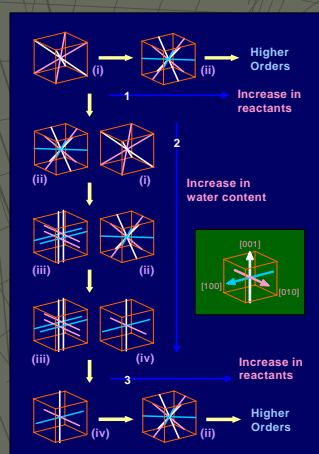
... bridging chemical engineering and nanotechnology

Natural and manmade catalytic materials are among the oldest “nanostructured materials” known to mankind and have served us well, but nanotechnology promises to open up possibilities previously unimagined. Classic heterogeneous catalysts consist of active nanoscale metal components and solid carriers that increase the reaction surface area and metal utilization, but rapid developments in nanoscience and nanotechnology now make it possible to improve upon what was possible before. A wide range of synthetic techniques is now available for creating novel and improved catalytic materials, thanks to nanotechnology. For example, nanostructured materials can be prepared with constrained or unconstrained synthetic methods, in which inorganic or organic templates are commonly employed.



A self-organization process for synthesis of anatase TiO₂ crystal array on the α -MoO₃ (010) surface

Contact: A/Prof. Hua Chun Zeng
Tel: 6874 2896
Email: chezhc@nus.edu.sg



A wet synthetic route for tailoring the architecture of catalytic semiconductor Cu₂O

An organized assembly of catalytic materials can be thought of as a “catalyst device”, and manipulating the chemical and structural organization of the elements in such devices can lead to profound changes in their ultimate performance. In view of the rapid progress in this field, one can expect, in the foreseeable future, a rapid transformation from traditional catalyst preparation methods to a more sophisticated technology based on molecular “assembly”.