



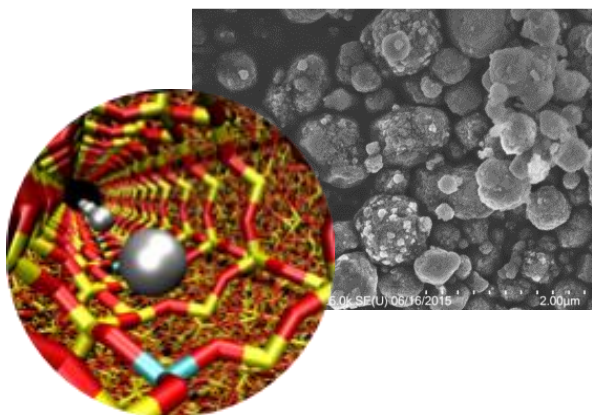
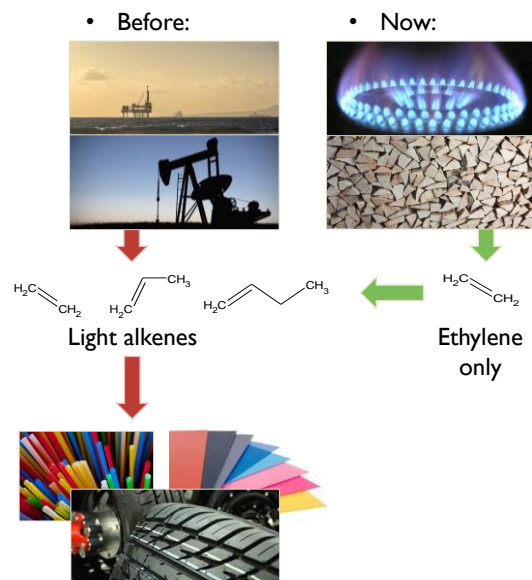
Ethylene oligomerization over nickel-containing mesoporous aluminosilicates

Motivation and challenge

Propene and butadiene are valuable alkenes, precursors of several commercial chemicals. The current shift from oil to a variety of cleaner sources reduces their supply. Therefore, alternative routes of selective production are being explored and oligomerization of ethylene is a major one. Our project aims at developing new oligomerization catalysts based on the combined advantage of the two classes of catalysts currently used in industry: high activity nickel ions and shape-selective zeotype material.

Objectives and scope

The objective is to advance the knowledge about the mechanism of ethene oligomerization over metal-containing mesoporous aluminosilicates, and hopefully, contribute to an optimized metal/support combination. The thesis will focus on catalytic kinetic studies, as a mean of elucidating mechanistic information about the reaction and of developing innovative oligomerization catalysts. A first Master student has spent his thesis developing an experimental procedure for ethene oligomerization at high pressure, and the new student will benefit from the experience gained in the group. One professor and two postdoc scientists are now involved in the project. The student will also benefit from collaboration with spectroscopists from the University of Turin, Italy, performing in-situ IR spectroscopy of the target reaction.



Skills to be developed

- Catalytic testing: operation of a high pressure reactor, gas chromatography and coke analysis, data processing, mechanism and kinetic model development.
- Synthesis and characterization of inorganic materials: X-ray diffraction, N_2 adsorption isotherm, thermogravimetric analysis, elemental analysis, electron microscopy.

Contact information: Dr. Reynald Henry, reynald.henry@smn.uio.no, ØU40, ph. 22855451.