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ZEOLITIC MOLECULAR SIEVE MATERIALS FOR EMERGING APPLICATIONS

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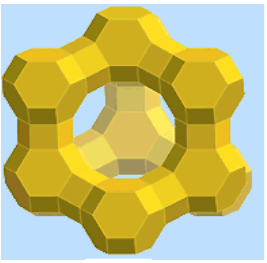
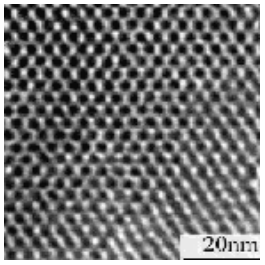
Introduction

- Zeolitic molecular sieve materials are of significant and technological interest because of their high surface area, uniform pore size that is controllable, as well as tailorable surface and compositional properties.
- Apart from traditional applications as an ion exchanger, catalyst, and adsorbent, zeolites and molecular sieves are invading into emerging
- areas like nanotechnology, environmental clean-up, etc.
- Pursued in this project are applications of zeolitic molecular sieve materials for emerging applications.

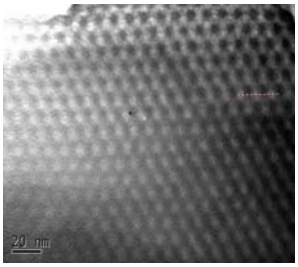
Zeolitic molecular sieves are excellent nanovessels where nanoparticles can be grown and controlled



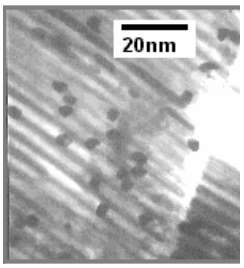
Unit Cell of Zeolite Y



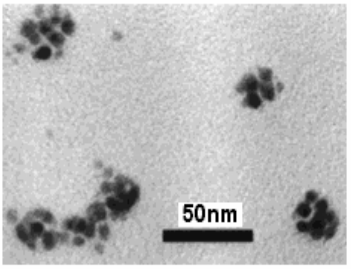
TEM image of MCM-41



TEM image of SBA-15

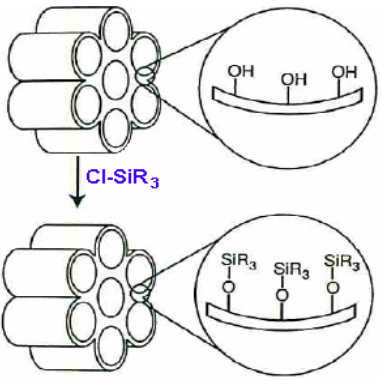


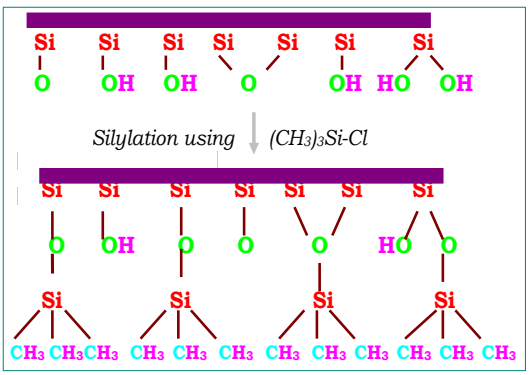
TEM image of Pt and

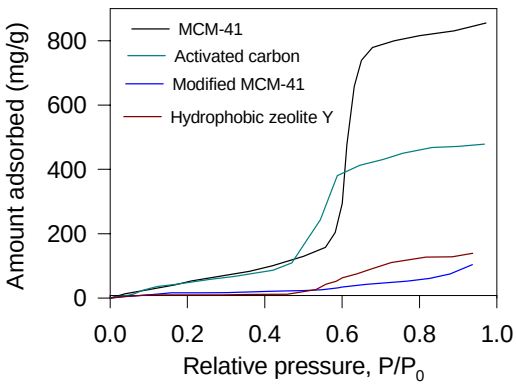


TiO_2 nanoparticles

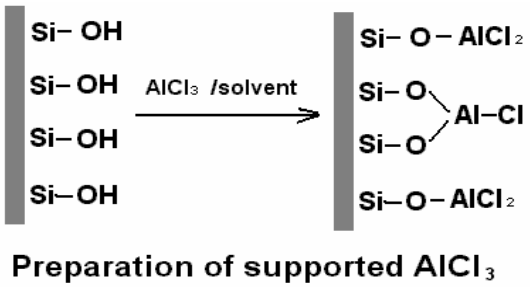
Surface-functionalized nanoporous materials are extremely hydrophobic & potential adsorbents for VOC control



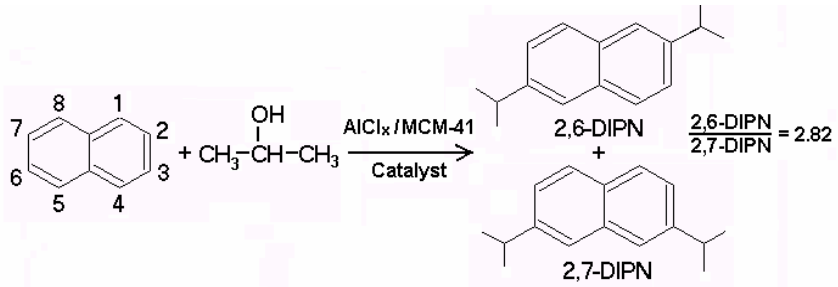




Immobilization of $AlCl_3$ on nanoporous materials are promising environmentally friendly alternative catalysts



Preparation of supported $AlCl_3$



Microporous titanosilicate ETS-10 displays remarkable adsorption rate towards heavy metal ions such as Pb^{2+}