

PMSE

Jeffrey Pyun, Alshakim Nelson, Christopher Stafford

Tuesday, August 30, 2011

133 - Mesoporous polymer networks by hard templating: High surface area resins, hydrogels of reversible porosity and CO₂ capture materials

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The synthesis of mesoporous polymers with well-defined pore sizes and a high overall porosity and surface area is still a widely unexplored field. Using soft-templating, it is possible to control pore sizes and shapes very well, but the synthesis of block copolymer precursors is typically required, which makes this procedure lengthy. Contrary, hard-templating, i.e. using inorganic nanostructures as templates offers a synthetically easier pathway, which also allows the synthesis of mesoporous polymers which are not easily accessible by soft-templating (e.g. mesoporous polybenzimidazole).

This presentation will focus on the synthesis and analysis of a variety of mesoporous polymer networks, ranging from polystyrene model systems to hydrogels of reversible porosity and hierarchically structured melamine-formaldehyde resins which feature interesting CO₂ sorption properties. A focus will be laid on the porosity characterization which is not trivial for soft polymeric systems in comparison to the well known rigid inorganic materials (e.g. SBA-15).

Tuesday, August 30, 2011 11:40 AM[Porous Polymers \(08:30 AM - 12:00 PM\)](#)**Location: Sheraton Denver****Room: Directors Row I**

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