

Abstract Submitted
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Adsorption of CO₂ in porous MCM-41 and MCM-48 using small angle scattering¹ BO WANG, Dept. of Physics and LENS, Indiana University, NARAYAN DAS, LENS, Indiana University, GARFIELD WARREN, Dept. of Physics, Indiana University, JOHN RUPP, MARIA MASTALERZ, Indiana Geological Survey, Indiana University, TIMOTHY PRISK, PAUL SOKOL, Dept. of Physics and LENS, Indiana University, DEPARTMENT OF PHYSICS AND LOW ENERGY NEUTRON SOURCE(LENS), INDIANA UNIVERSITY TEAM, INDIANA GEOLOGICAL SURVEY, INDIANA UNIVERSITY COLLABORATION — Adsorption of CO₂ onto the surface of nanopores in organic rich materials, such as shale and coals, is of great interest for understanding the processes associated with geological sequestration. These natural materials have complex pore structures which make the interpretation of experimental sorption measurements complicated. MCMs are synthetic materials with a well-defined regular porous structure that provides an ideal substrate to evaluate the models for the adsorption of gases (CO₂) into nanopores. Samples of MCM-41 and MCM-48 were synthesized at Indiana University and were characterized by nitrogen adsorption isotherms and Small Angle X-ray Scattering (SAXS). SANS studies were carried out on MCMs with different pore sizes as a function of pore filling and the results are interpreted in terms of layer growth models.

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