

Abstract Submitted
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Small-angle Neutron Scattering Measurements of Liquid Helium Mixtures Confined in MCM-41¹ HELMUT KAISER, Low Energy Neutron Source (LENS), Indiana University, TIMOTHY PRISK, PAUL SOKOL, IAN STEWARD, Indiana University Department of Physics, CLAUDIA PANTALEI, Ecole Normale Supérieure — Small-angle neutron scattering (SANS) was used to study the isotopic distribution of liquid helium mixtures confined in MCM-41, a silica glass with a 2D hexagonal net of monodisperse cylindrical pores, as a function of filling and He³ concentration. The ordered pore array of MCM-41 gives rise to Bragg reflections with intensities determined by both how the liquid fills the pores and how the isotopes are distributed within the pores. The modulation in peak intensity can be modeled by writing down a form factor for cylindrical objects with varying scattering length density. Comparison will be made with small-angle X-ray (SAXS) scattering measurements performed with synchrotron light on liquid helium mixtures confined in aerogel.

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