

Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

X-ray and Neutron Scattering Studies of Methyl Iodide Confined in GelTech[®] Glass YVONNE GLANVILLE¹, Penn State University, PAUL SOKOL, Indiana University Cyclotron Facility, STEVEN EHRLICH, National Synchrotron Light Source — X-ray diffraction and neutron scattering studies of methyl iodide confined in 200 Å GelTech[®] glass have revealed a never before observed intermediate solid phase of methyl iodide. Bulk methyl iodide has one phase transition below room temperature, at 207 K where it transitions from a liquid to an orthorhombic solid. Neutron scattering studies of the diffusion of methyl iodide confined in the 200 Å pores show a transition from a liquid to a solid at 203 K. X-ray diffraction measurements support this finding and identify the transition as one from a liquid to the never before observed amorphous solid. The amorphous solid remains down to 168 K upon cooling at which point a second transition appears from the amorphous solid to an orthorhombic solid, which upon indexing is identical to the bulk.

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Date submitted: 05 Dec 2006

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