

Different Thermal Behaviour between Hydrogen and Deuterium Molecules in Clathrate Hydrate Cages

박영준, 연순화, 최숙정, 최용남¹, 이 혼*
한국과학기술원; ¹한국원자력연구소
(h_lee@kaist.ac.kr*)

Significant different behaviour between hydrogen and deuterium molecules in solely confined nano-sized cages has been observed through the neutron powder diffraction technique. The scattering properties of hydrogen and deuterium molecules make different scattering patterns. In generally, incoherent scattering property of hydrogen atom generates a background signal that makes it difficult to detect the coherent Bragg scattering from the hydrogenous material. However, in this report we firstly performed direct observation of hydrogen molecules entrapped in THF hydrate and also examine the different scattering behaviour between hydrogen and deuterium molecules depending on the temperatures.