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NMR Studies of the Dynamics of HD Adsorbed on MCM-41[1]
CHAO HUAN, JAHA HAMIDA, NEIL SULLIVAN, University of Florida — We report the results of measurements of the nuclear spin-spin and spin-lattice relaxation times of a monolayer of HD molecules adsorbed on MCM-41 for temperatures $1.5 < T < 20$ K. Two distinct characteristic relaxation times are observed. A slow diffusion process for $5 < T < 8.8$ K and a faster rate with a distinctly different activation energy for $8.9 < T < 12$ K. The behavior is fluid-like above 12 K. We discuss the results in terms of an expected cluster formation at low temperatures followed by the diffusion of single molecules at high temperatures.

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