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Pulsed NMR experiment on ^{3}He adsorbed on MCM-41[1] CHAO HUAN, NAOTO MASUHARA, NEIL SULLIVAN, Department of Physics, Univ of Florida — The properties of the one-dimensional states have been an intriguing topic for the condensed matter physics community with growing interest in quantum systems in the last few years. In previous research, a metaporous material of MCM-41 has been used to study the crossover from 2D motion to 1D motion of adsorbed 3He atoms due to the uniqueness of the pore shape of MCM-41. In this experimental study, we applied pulsed NMR techniques to measure the nuclear susceptibility, the spin-lattice relaxation times (T1) and spin-spin relaxation times (T2) in the temperature region of 0.08-1.0 Kelvin. Preliminary measurements on an adsorbed 3He sample of multiple layers on MCM-41 show that the nuclear susceptibility deviates from the prediction of the Fermi liquid theory and both T1 and T2 decrease with temperature down to 80 mK.

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Chao Huan
Univ of Florida - Gainesville

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