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Inelastic Neutron Scattering from Hydrogen Adsorbed in Carbon[1] RAINA OLSEN, MATTHEW BECKNER, HASKELL TAUB, PETER PFEIFER, CARLOS WEXLER, University of Missouri — Inelastic neutron scattering (INS) from adsorbed hydrogen offers a powerful tool to probe the local adsorption environment of storage material. We will show recently measured INS spectra of hydrogen adsorbed on four different carbon samples and discuss the interpretation of their spectral features, using previous theoretical calculations [1]. Both rotational and vibrational transitions can be observed, along with free recoil scattering parallel to the adsorption plane. The spectra from carbon nanotubes and activated carbon are well explained by theory. However, the spectra from PVDC carbon is quite unusual.

[1] R. Olsen, L. Firlej, B. Kuchta, H. Taub, P. Pfeifer, and C. Wexler; Sub-Nanometer Characterization of Activated Carbon by Inelastic Neutron Scattering; Carbon (under review).

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