

Abstract Submitted
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Adsorption study of Hydrogen in Carbon based Materials as measured by Nuclear Magnetic Resonance¹ ALFRED KLEINHAMMES, SHENGHUA MAO, MARCELO BEHAR, YUE WU, Department of Physics and Astronomy and Curriculum in Applied and Materials Sciences, University of North Carolina at Chapel Hill, NC 27599-3255 — Nuclear magnetic resonance is shown to be a sensitive tool to probe hydrogen adsorption. The technique distinguishes between adsorbed H₂, hydrogen in the gas phase and can discriminate against protons brought in through contaminants. NMR provides a quantitative measurement of the number of molecules adsorbed. An estimate of the adsorption energy can be obtained from the measured isotherm. Adsorption measurements of H₂ in several materials – metal organic frameworks, conducting polymers, and doped single walled carbon nanotubes – are reported. Boron doped SWNTs when loaded with H₂ produce intriguing ¹H spectra indicative of adsorption and possibly several adsorption sites

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Alfred Kleinhammes
University of North Carolina at Chapel Hill

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