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Magnetic Properties of High-Surface-Area Carbons and Their Effect on Adsorbed Hydrogen JIMMY ROMANOS, MATTHEW BECKNER, MICHAEL KRAUS, JACOB BURRESS, PETER PFEIFER, Dept. of Physics and Astronomy, Univ. of Missouri — We report the discovery that a large number of nanoporous carbon samples, made from corn cob and exhibiting high hydrogen storage capacities (Pfeifer et al, Mater. Res. Soc. Symp. Proc. 1041 R02-02 (2008)), show unexpected magnetic properties, due to iron impurities in the samples. Magnetization curves are consistent with ferromagnetic and/or super-paramagnetic behavior. Magnetic susceptibilities, saturation magnetizations, coercivities and remanence magnetizations, from measurements on a SQUID magnetometer, will be presented, and their temperature dependence will be discussed. Results will be presented regarding the presence of small iron clusters, magnetic properties of iron-leached samples, and hydrogen binding energies as a function of iron leaching. This material is based on work supported by the U.S. Department of Energy under Award No. DE-FG-08GO18142.

Jacob Burress
Dept. of Physics and Astronomy, Univ. of Missouri

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