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Boron-Doped Carbon Nanospaces for High-Capacity Hydrogen Storage MATTHEW BECKNER, JACOB BURRESS, CARLOS WEXLER, Dept. of Physics and Astronomy, Univ. of Missouri, ZHI YANG, FRED HAWTHORNE, Dept. of Radiology, Univ. of Missouri, PETER PFEIFER, Dept. of Physics and Astronomy, Univ. of Missouri — The Alliance for Collaborative Research in Alternative Fuel Technology (ALL-CRAFT, http://all-craft.missouri.edu) has been optimizing high surface area [>3,000 m2/g] activated carbon nanospaces for high capacity hydrogen storage. Boron-doped samples have been produced using solid, liquid, and vapor phase boron doping. The boron-doped samples were analyzed using sub-critical nitrogen adsorption to determine surface areas and the effect that boron-doping and annealing, as a function of temperature, has on the microporous structure of the samples. Results will be presented for hydrogen storage capacity (excess adsorption) per unit area of boron-doped surface, and for hydrogen binding energies at 77 K and 293 K, as a function of boron concentration and annealing temperature. This material is based on work supported by the U.S. Department of Defense under Awards No. N00164-07-P-1306 and N00164-08-C-GS37.

Jacob Burress

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