

Abstract Submitted
for the MAR17 Meeting of
The American Physical Society

Hydrogen and Methane Sorption in Carbon Microspheres DONALD BETHEA, JACOB BURRESS, University of South Alabama — One possible avenue of gaseous fuel storage is the use of physisorption. The dispersive van der Waals force results in an attraction between a gas molecule and a solid surface. This causes the density of the gas to increase. The two major categories of sorbent materials being investigated are carbon materials (activated carbons) and porous crystalline solids (metal-organic frameworks). Results will be presented on hydrogen and methane sorption measurements on activated carbon microspheres. The carbon microspheres are produced hydrothermally from sucrose. In brief, sucrose is dissolved in water and heated at 200 degrees Celsius resulting in small carbon spheres. The microspheres as first produced are solid, with no inner hollow. Transmission electron microscopy shows the microspheres as approximately one micrometer in diameter. These microspheres were then activated using high temperature carbon dioxide to create pores and increase surface areas. Results before and after activation will be presented. The effect of particle shape on packing of the sorbent powder will be discussed. Transmission electron microscopy images will be shown.

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Date submitted: 10 Nov 2016

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