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Characterization of Carbon Aerogels as Scaffolds for Hydrogen Storage Materials. NINA VERDAL, TERRENCE UDOVIC, National Institute for Standards and Technology, MICHAEL HARTMAN, MARGARET BACON, University of Michigan, JOHN VAJO, HRL Laboraties, LLC, ADAM GROSS, HRL Laboratories, LLC, THEODORE BAUMANN, Lawrence Livermore National Laboratory, JOHN RUSH, National Institute for Standards and Technology, NIST CENTER FOR NEUTRON RESEARCH COLLABORATION, NUCLEAR ENGINEERING AND RADIOLOGICAL SCIENCES, UNIVERSITY OF MICHIGAN COLLABORATION, HRL LABORATORIES COLLABORATION, ADVANCED MATERIALS SYNTHESIS GROUP, LLNL COLLABORATION — Alkali borohydrides are strong candidates for on-board hydrogen storage. Nanoconfinement of these materials in carbon aerogels improves the kinetics for the dehydrogenation reaction. Efforts have been made to understand the mechanisms behind this improvement. Prompt gamma activation analysis shows that the amount of hydrogen bound to the bare aerogel from the synthesis is dependent on pyrolysis temperature. Neutron vibrational spectra show that these hydrogen atoms are primarily sp^2 bound to the carbon scaffold. Small angle neutron scattering (SANS) data have been collected for the bare aerogel and the aerogel partly and entirely filled with $LiBH_4$ providing information about the pore filling and morphology.

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