

Abstract Submitted
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Nanostructured Adsorbents for Hydrogen Storage¹ LIN SIMPSON,
National Renewable Energy Laboratory — To meet the DOE goals for hydrogen storage, NREL and our partners have focused development efforts on the use of nanomaterials with hydrogen binding energies between ~ 4 and 40 kJ/mol. The use of these types of materials enables hydrogen to be reversibly adsorption/desorption with moderate to low temperatures and pressures, and greatly simplifies the refueling/ regeneration process. NREL is investigating multiple approaches to obtain high hydrogen sorption materials with the common goal of determining the underlying mechanisms and applying a fundamental basis to intelligently design advanced materials. NREL will provide detailed hydrogen capacity/performance and reproducible processing information for promising nanostructured materials. This will include detailing the potential for hydrogen storage by nanostructures, the effects of dopants, demonstrate materials with greater than 4 wt% hydrogen uptake, and discuss the potential to develop materials with 9 wt% or more hydrogen storage.

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