

ABSTRACT

**2001 Gordon Research Conference on Hydrogen-Metals Systems
New London, Connecticut
July 8 – 13, 2001**

Exotic Properties and Applications of Metal Hydrides - A Personal View

Robert C. Bowman
Jet Propulsion Laboratory
Pasadena, CA 91109

A general review of some ^{of} the exotic and novel properties of metal hydrides will be presented. Topics to be covered are radiation damage effects in LiH and its isotopes; hydrogen isotope effects on the phase diagrams, thermodynamics, and diffusion parameters for the V – (H, D, T)₂ system; hydrogen induced motion of the host metal atoms; hydrogen gas gap heat switches using metal hydrides as actuators; and a description of hydrogen sorption cryocoolers. A brief summary of the BETSCE cooler development and shuttle flight will be given. Finally, the roles of metal hydrides in the current development of the 20 K sorption coolers for the future Planck mission will be briefly presented.

This research was carried out ^{at} by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautical and Space Administration.