# GAIN NEW DIRECTIONS OF METAL BOROHYDRIDES THROUGH RESTUDYING OLD MATERIALS

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Development of advanced hydrogen storage technology is of great importance for widespread realization of hydrogen powered society. Advanced hydrogen storage materials are highly expected to release and reabsorb hydrogen with high density at near ambient condition with reasonably fast rate. Metal borohydrides with hydrogen density of approximately 10 mass% have been extensively investigated for nearly 15 years, triggered by the discovery of the effective catalyst for the reversible de/rehydrogenation of $NaAlH_4$ [1]. Although a large number of significant achievements have been represented, no material can meet all the requirements for practical applications [2-5]. In this talk, we will overview the significant achievements of metal borohydride research, and discuss the key issues from the points of thermodynamic and kinetic views as well, in order to propose new directions of metal borohydrides R & D for portable and stationary hydrogen storage.

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Hai-Wen LI is currently an associate professor at International Research Center for Hydrogen Energy and International Institute for Carbon-Neutral Energy Research (WPI-I2CNER), Kyushu University. After obtaining his Ph. D. degree in 2005 from Kitami Institute of Technology under the supervision of Prof. Kiyoshi AOKI, he started to work as a postdoctoral researcher with Prof. Shin-ichi ORIMO at Institute for Materials Research, Tohoku University. He was awarded a JSPS Postdoctoral Research Fellowship for 2 years (2006-2008). He worked as an assistant professor at Institute for Materials Research, Tohoku University from 2008 to 2011. His research interests focus on investigating fundamental, physical and chemical properties of interstitial and non-interstitial hydrides, aiming at developing advanced energy storage materials for high-density hydrogen storage and electrochemical applications.