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Metal borohydrides: from hydrogen storage to electrochemistry

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Metal borohydrides ($M-BH_4$) have focused research attention due to large hydrogen content. Extensive basic research efforts were directed toward understanding their dynamical and thermodynamic properties. Unfortunately, till now none of such compounds meets practical requirements for reversible hydrogen storage. The unexpected side effect of such research was discovery of the high ion mobility in pure or ion substituted $LiBH_4$. Even more surprising was the discovery of high sodium mobility in decomposition products of $NaBH_4$ containing large $B_{12}H_{12}$ anions. All these effects are related to the dynamical properties of systems with small non-spherical ions that will be presented from theoretical perspective during the talk.

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