Electronic Supplementary Information (ESI)

Altered Reaction Pathways of Eutectic LiBH$_4$-Mg(BH$_4$)$_2$ by Nanoconfinement

Zhirong Zhao-Karger,* Raiker Witter, Elisa Gil Bardaji, Di Wang, Daniel Cossement and Maximilian Fichtner

**Fig. S1** XRD patterns of a LiBH$_4$ ball-milled for 12h; b $\alpha$-Mg(BH$_4$)$_2$; c ball-milled $\alpha$-Mg(BH$_4$)$_2$, i.e. $\beta$-Mg(BH$_4$)$_2$; d LMBH composite prepared by ball-milling; e LMBH composite after heating treatment at 190°C under 40 bar of H$_2$; f LMBH/IRH33 composite
**Fig. S2** *Ex situ* X-ray diffraction patterns of the decomposed products of the eutectic LiBH₄-Mg(BH₄)₂ at different temperatures.
**Fig. S3** $^{11}$B MAS-NMR spectra of samples of LMBH/IRH33 at different stages of dehydrogenation. a’ starting material LMBH/IRH33, b’ sample desorbed at 280 °C; c’ sample desorbed at 380°C; c’’ NMR double angle rotation experiments for the decomposed sample at 380°C (see spectrum) d’ sample desorbed 410 °C, *Indicates spinning side bands

**References**