Electronic Supplementary Information (ESI)

Altered Reaction Pathways of Eutectic $LiBH_4$-$Mg(BH_4)_2$ by Nanoconfinement

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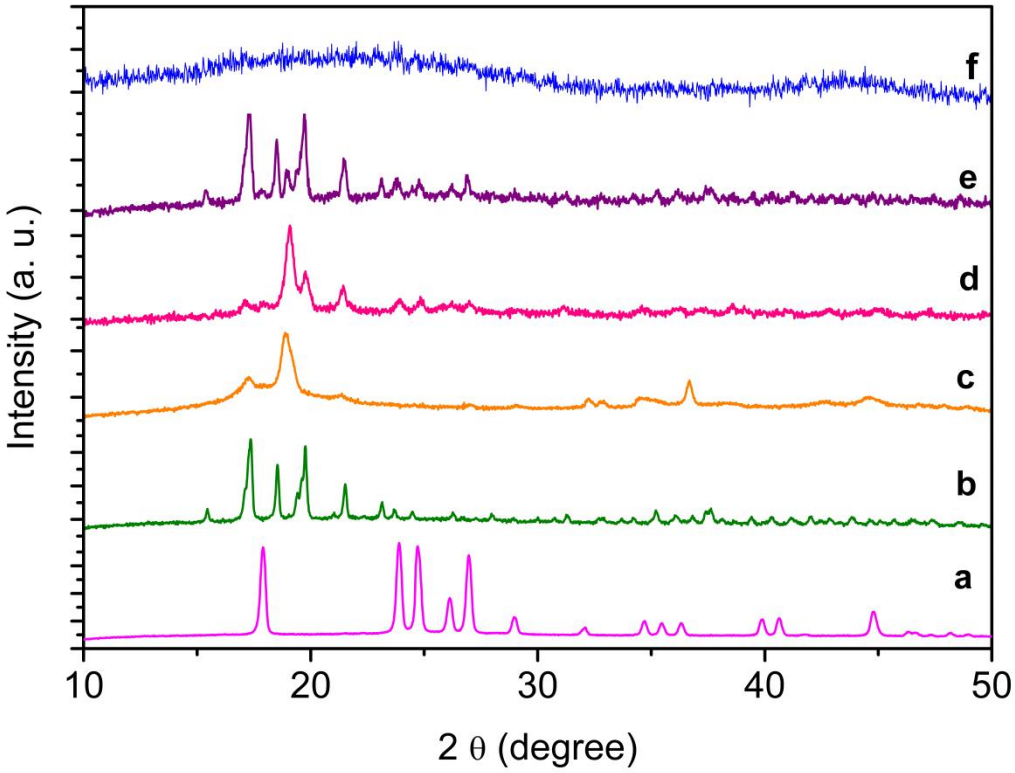

Fig. S1 XRD patterns of **a** $LiBH_4$ ball-milled for 12h; **b** α-$Mg(BH_4)_2$; **c** ball-milled α-$Mg(BH_4)_2$, i.e. β-$Mg(BH_4)_2$; **d** LMBH composite prepared by ball-milling; **e** LMBH composite after heating treatment at 190°C under 40 bar of H_2; **f** LMBH/IRH33 composite

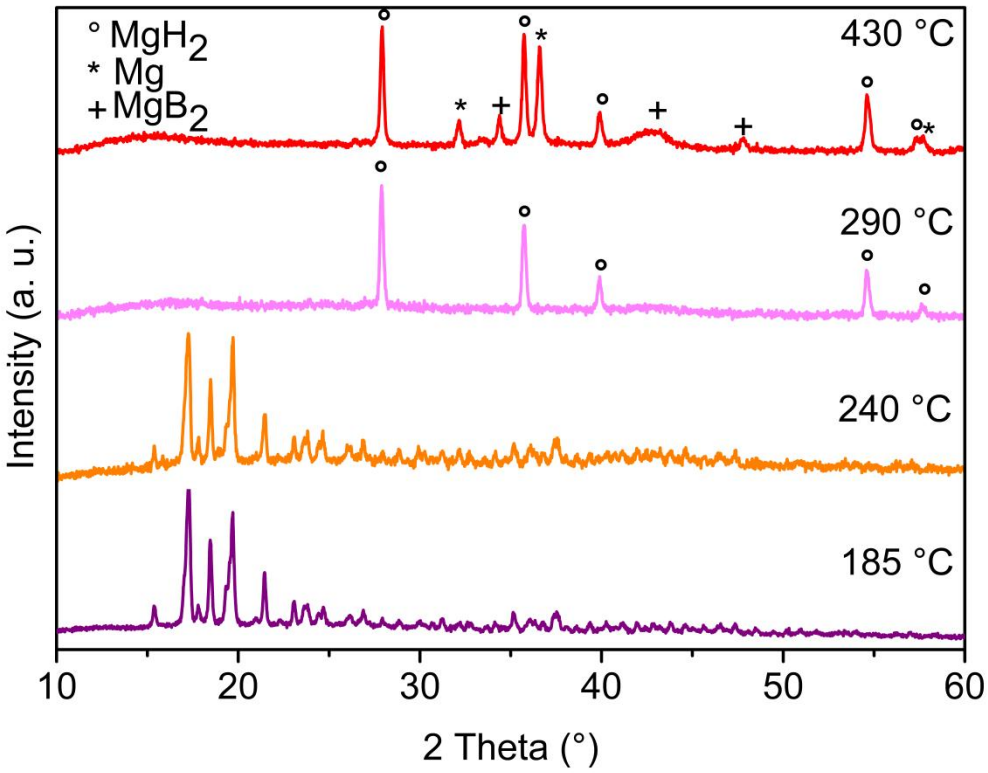

Fig. S2 *Ex situ* X-ray diffraction patterns of the decomposed products of the eutectic $LiBH_4$-$Mg(BH_4)_2$ at different temperatures

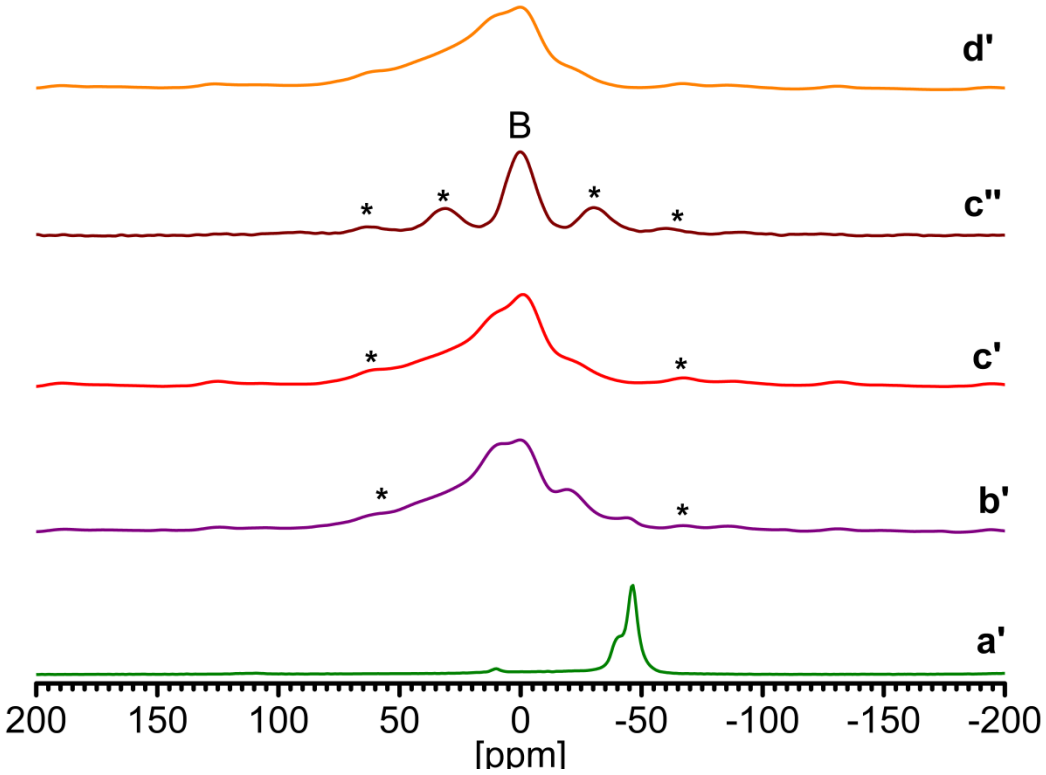

Fig. S3 ^{11}B MAS-NMR spectra of samples of LMBH/IRH33 at different stages of dehydrogenation **a'** starting material LMBH/IRH33, **b'** sample desorbed at 280 °C; **c'** sample desorbed at 380°C; **c''** NMR double angle rotation experiments[1] for the decomposed sample at 380°C (see spectrum**) d'** sample desorbed 410 °C, *Indicates spinning side bands

References

1 A. Samoson, E. Lippmaa and A. Pines, *Mol. Phys*., 1988, **65**, 1013.