Ni_3Fe/BC nanocatalyst based on biomass charcoal self-reduction achieves excellent hydrogen storage performance of MgH_2

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Supplementary Figures

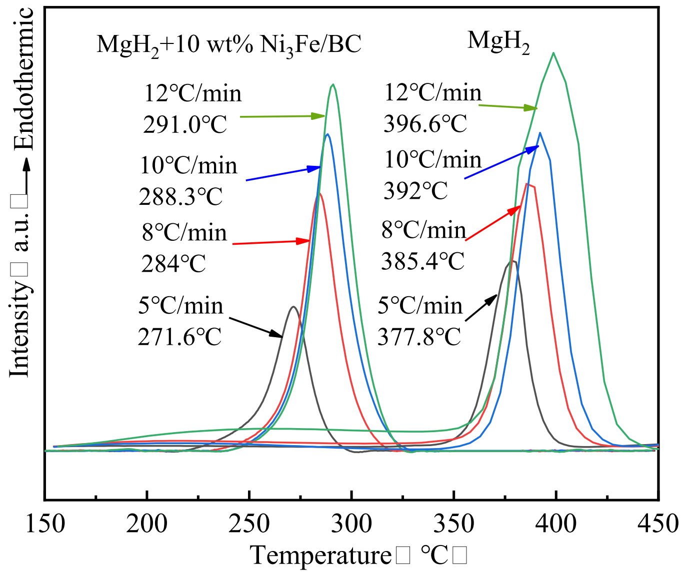

Fig. S1. DSC curves of MgH_2 and MgH_2+10 wt.% Ni_3Fe/BC at different heating rates

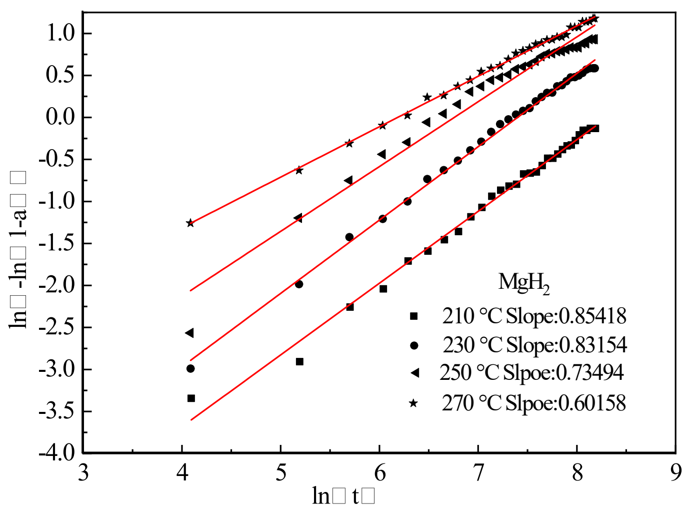

Fig. S2. JMAK plots of MgH_2

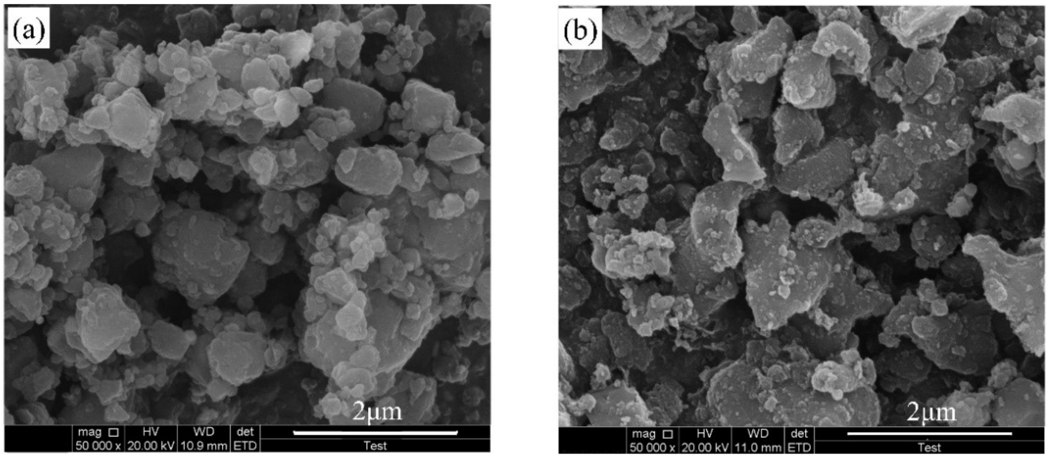

Fig. S3. SEM images of MgH_2+10 wt.% Ni_3Fe/BC after ball milling (a) and MgH_2+10 wt.% Ni_3Fe/BC after 20 cycles (b).

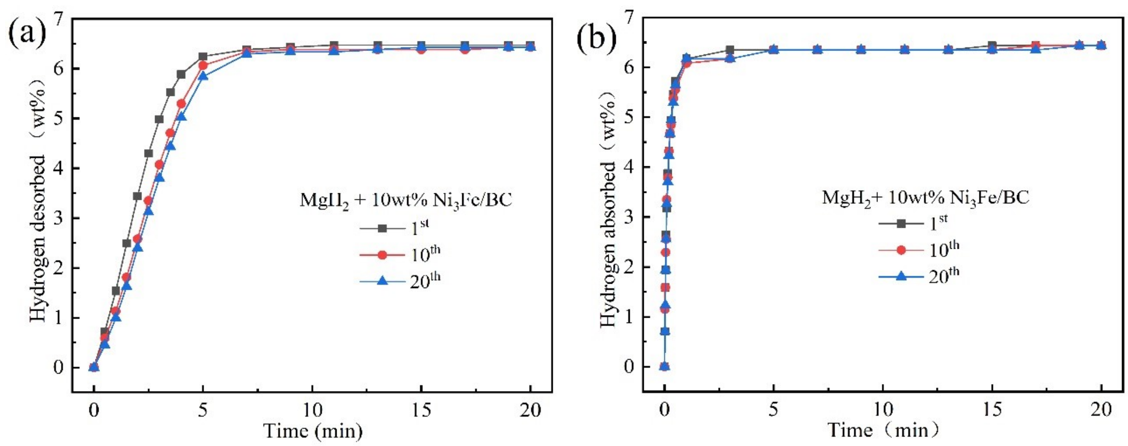

Fig. S4. Comparison of hydrogen release performance of MgH_2+10 wt% Ni_3Fe/BC at different cycling stages (a), comparison of hydrogen absorption performance of MgH_2+10 wt% Ni_3Fe/BC at different cycling stages (b).

Table S1 Effect of different catalyst doping on initial dehydrogenation temperature of MgH_2

Sample	initial dehydrogenation temperature (℃)	Refs.
MgH_2+5 wt.%FeNi/rGO	230	36
MgH_2+ 5 wt.% Ni_3Fe/rGO	185	35
MgH_2+9 wt.% NiO/C	195	19
MgH_2-Ni/Al_2O_3	190	46
MgH_2-70TiO_2@rGO	240	47
MgH_2-5 wt.% $K_2Ti_8O_{17}$	189	48
MgH_2+10 wt.% Ni_3Fe/BC	184.5	This work