

## Electronic Supplementary Material

### Excellent catalysis of $\text{Mn}_3\text{O}_4$ nanoparticles on the hydrogen storage properties of $\text{MgH}_2$ : An experimental and theoretical study

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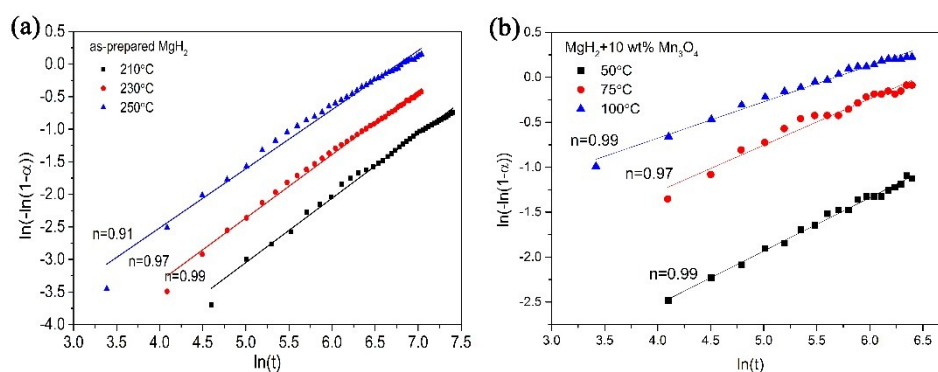


Fig.S1 JMAK plots of  $\text{MgH}_2$  and  $\text{MgH}_2+10 \text{ wt\% Mn}_3\text{O}_4$  composite.

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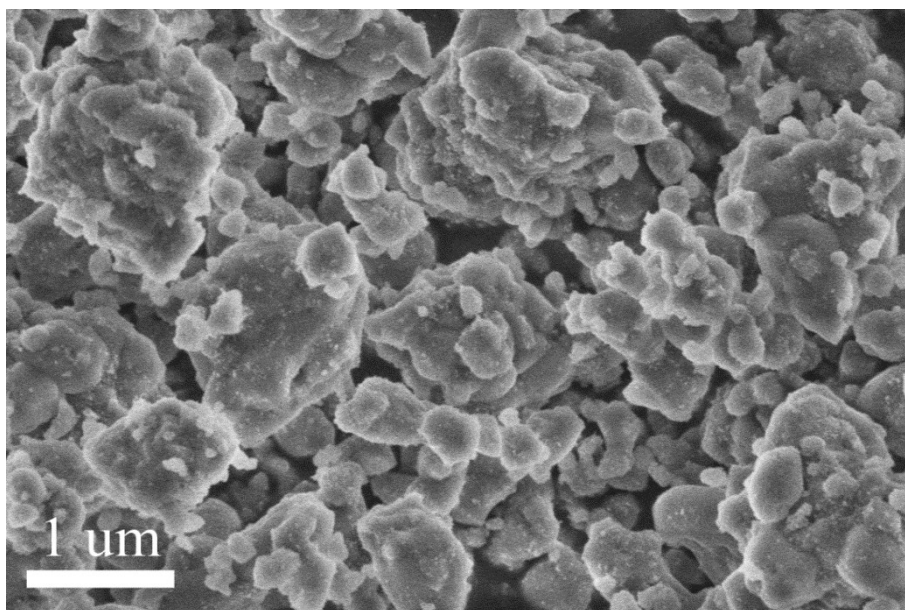


Fig.S2 SEM image of as-prepared  $\text{MgH}_2$ .

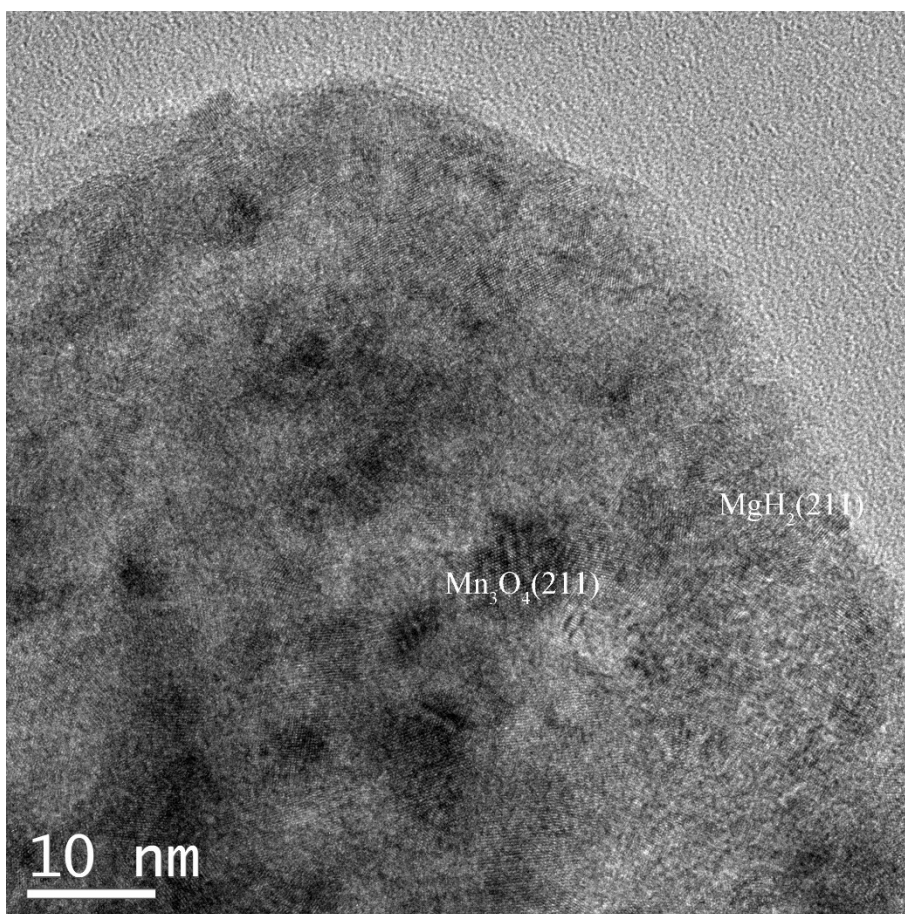


Fig.S3 TEM image of  $\text{MgH}_2$ +10 wt%  $\text{Mn}_3\text{O}_4$  composite in ball-milling state.

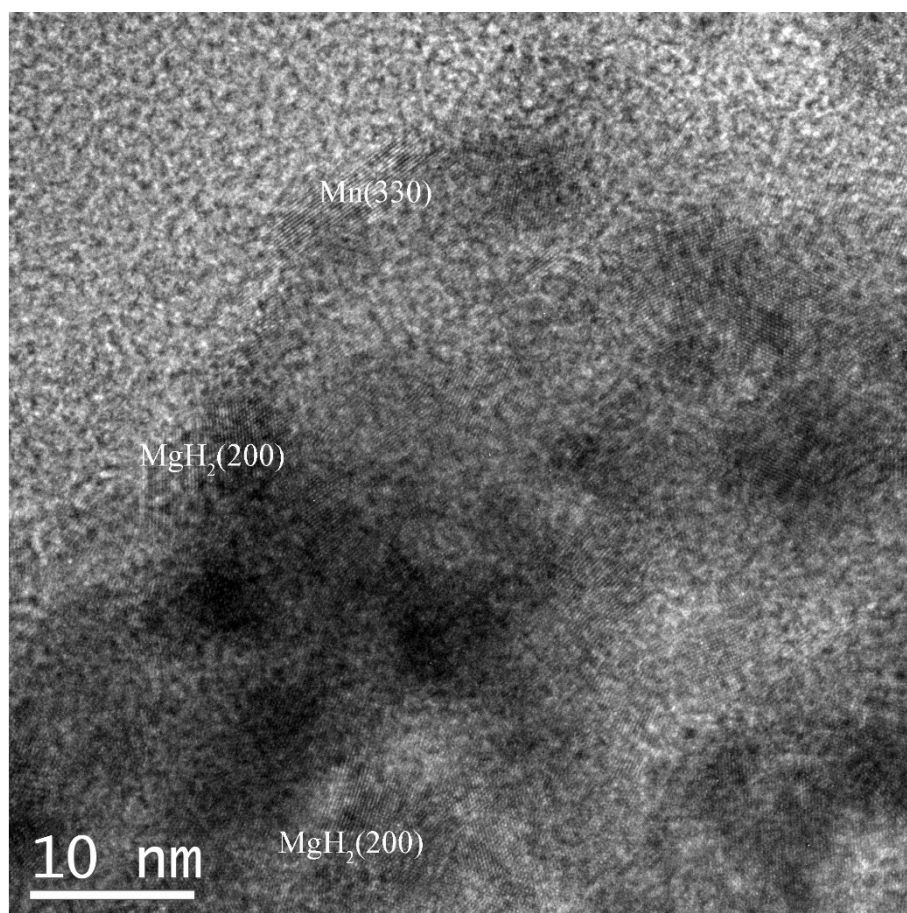


Fig.S4 TEM image of  $\text{MgH}_2 + 10 \text{ wt\% Mn}_3\text{O}_4$  composite after 20 cycles.