

## Supporting Information

### A robust core-shell nanostructured nickel-iron alloy@nitrogen-containing carbon catalyst for highly efficient hydrogenation of nitroarenes

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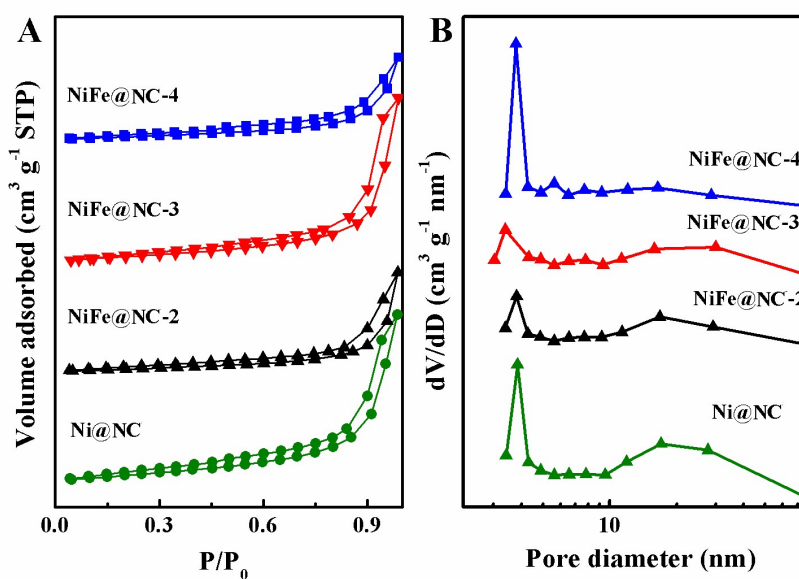
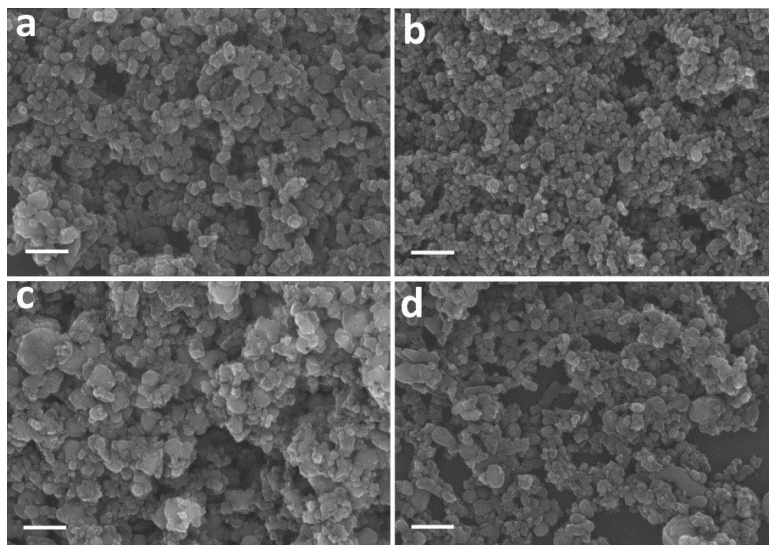
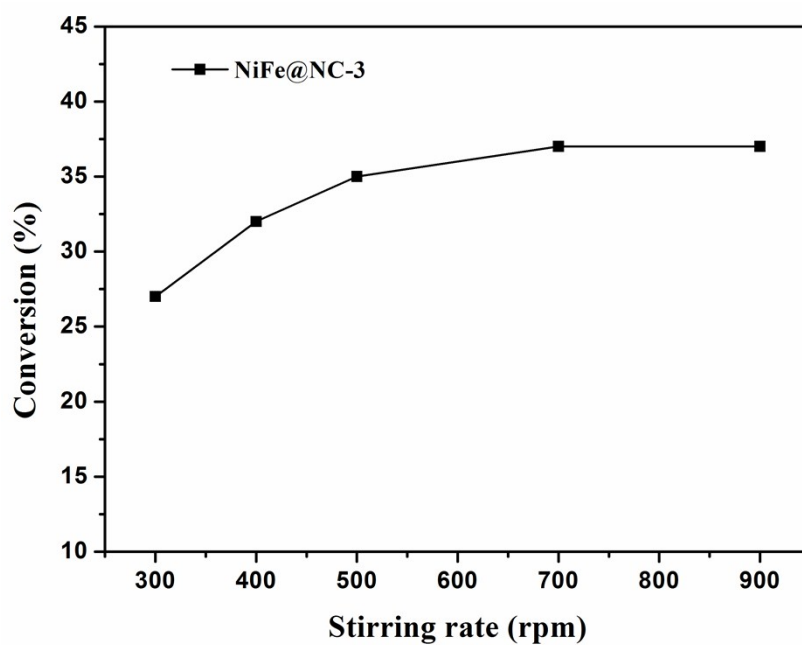


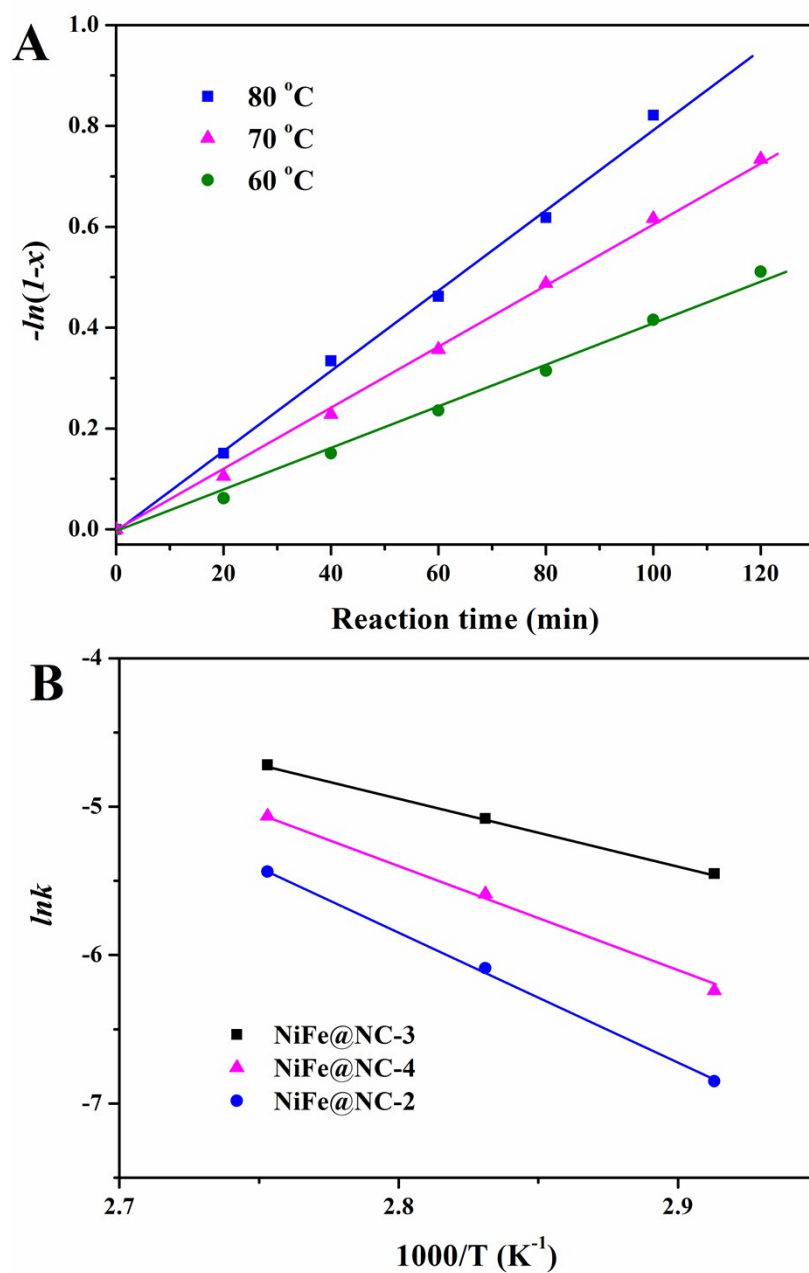
Fig.S1 Low-temperature N<sub>2</sub> adsorption-desorption isotherms (A) and corresponding pore size distributions (B) of different samples.



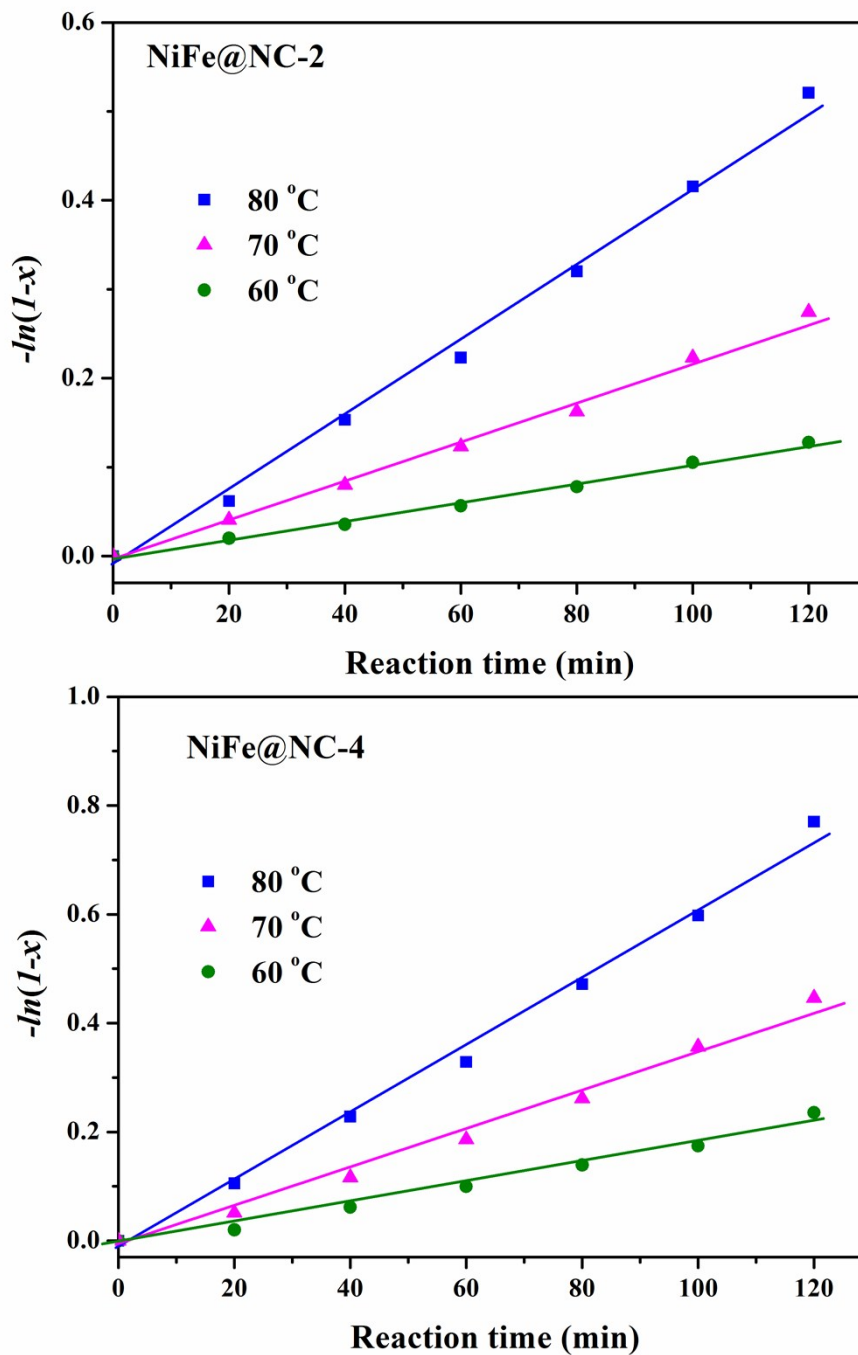
**Fig.S2** SEM images of NiFe@NC-2 (a), NiFe@NC-3(b), NiFe@NC-4 (c) and Ni@NC (d) samples. The bar scale is 200 nm.



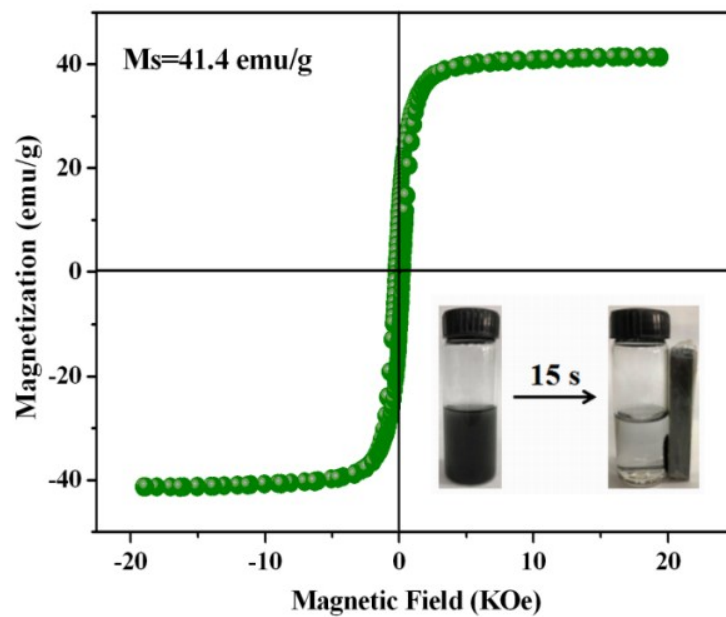
**Fig.S3** Dependence of *o*-CNB conversion on the stirring rate over NiFe@NC-3. Reaction conditions: 80 °C, 0.5 MPa hydrogen pressure and 60 min.



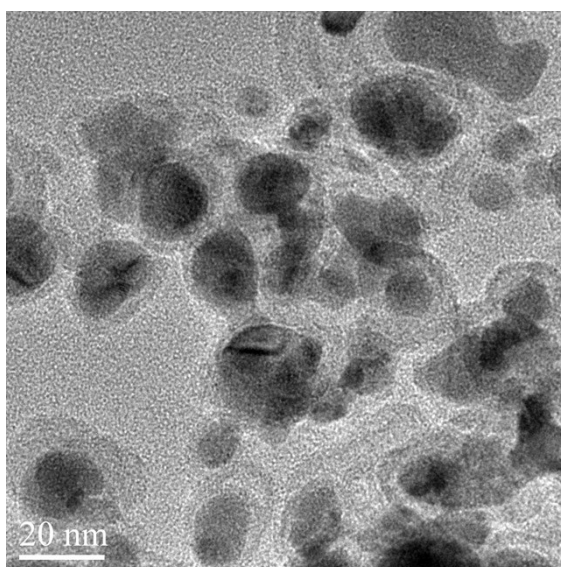
**Fig.S4** A)  $-\ln(1-x)$  vs. reaction time over the NiFe@NC-3 at different temperatures and B)  $\ln$  (reaction rate constant) vs. reciprocal of reaction temperature over different NiFe@NC catalysts in the *o*-CNB hydrogenation.



**Fig.S5**  $-\ln(1-x)$  vs. reaction time over NiFe@NC-2 and NiFe@NC-4 catalysts at different temperatures



**Fig.S6** Room-temperature magnetization plot of representative NiFe@NC-3 catalyst.



**Fig.S7** TEM image of NiFe@NC-3 after recycling for seventeen times.

**Table S1** Catalytic performances of other Ni-based catalysts in the hydrogenation of CNB.

Catalyst	Substrate	Time (min)	Temp. (°C)	P <sub>H2</sub> (MPa)	Conv. (%)	Selec.to <i>o</i> -CAN (%)	Rate of CNB converted ( $\mu\text{mol}\cdot\text{g}_{\text{cat}}^{-1}\cdot\text{s}^{-1}$ )	Ref.
Ni/TiO <sub>2</sub>	<i>o</i> -CNB	120	80	1.0	97	>98.0	8.6 <sup>a</sup>	[53]
Ni/C	<i>o</i> -CNB	120	140	2.0	98.9	86.0	8.7 <sup>a</sup>	[54]
Ni-B	<i>p</i> -CNB	90	80	1.0	98.3	94.5 <sup>b</sup>	12.1 <sup>c</sup>	[55]
Raney Ni	<i>p</i> -CNB	--	120	1.5	--	99 <sup>b</sup>	8.1	[56]
Ni/filamentous carbon	<i>p</i> -CNB	--	120	1.5	--	97 <sup>b</sup>	4.5	[56]
NiFe@NC-3	<i>o</i> -CNB	210	80	0.5	100	99.5	18.9	This work

<sup>a</sup> data obtained during 120 min; <sup>b</sup> *p*-CAN product; <sup>c</sup> data obtained during 90 min based on the Ni mass ( $\mu\text{mol}\cdot\text{g}_{\text{Ni}}^{-1}\cdot\text{s}^{-1}$ ).