Electronic Supplementary Material (ESI) for Catalysis Science & Technology.

Supporting Information

Carbon Nanofiber Supported Ni–ZnO Catalyst for Efficient and Selective Hydrogenation of Pyrolysis Gasoline

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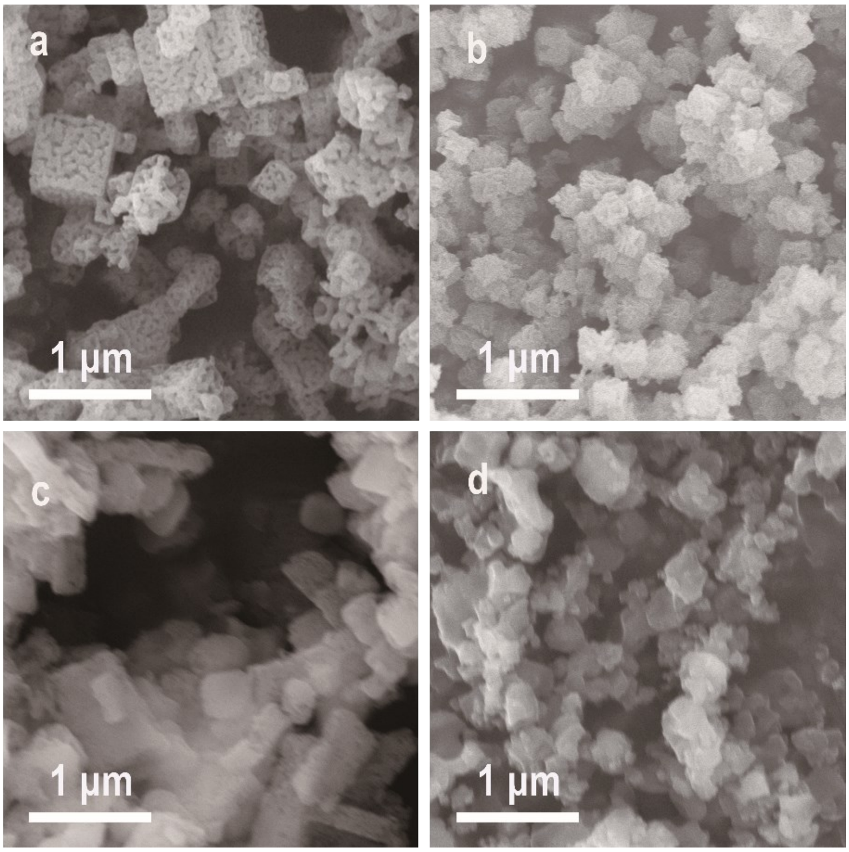

Fig. S1. SEM images of pure MOF-5 (a), Ni–MOF-5_1 (b), Ni–MOF-5_2 (c), Ni–MOF-5_3 (d).

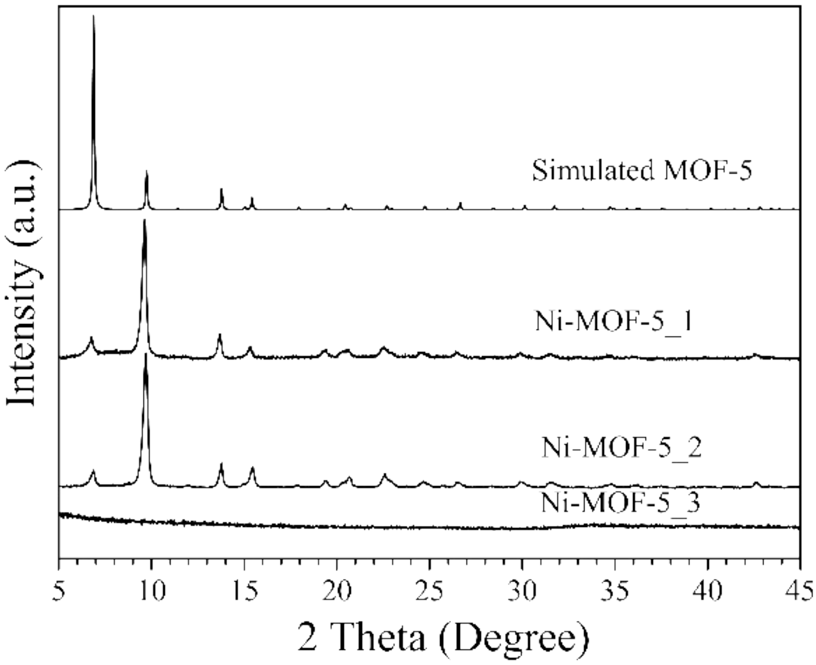

Fig. S2. XRD patterns of simulated MOF-5, Ni–MOF-5_1, and Ni–MOF-5_2 and Ni–MOF-5_3.

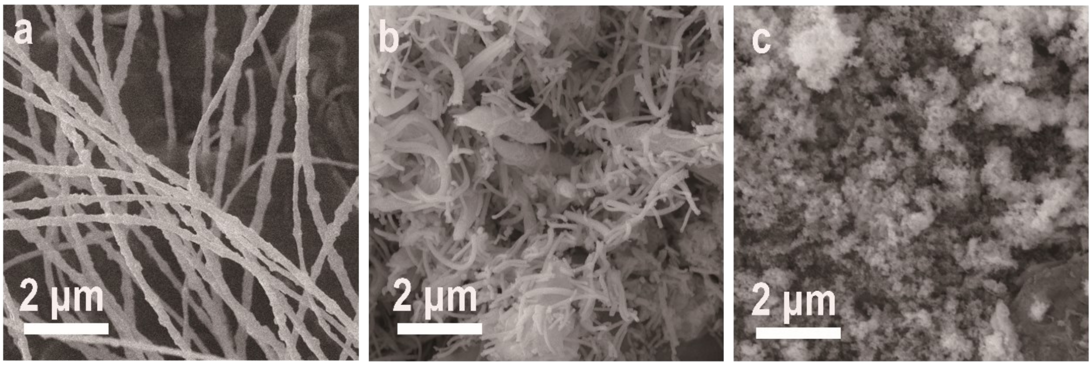

Fig. S3. SEM images of Ni–MOF-5_1/PAN (a) and SEM images of the products of Ni–MOF-5_1/PAN calcinated at 450 °C for 2 h (b), and at 500 °C for 1 h (c).

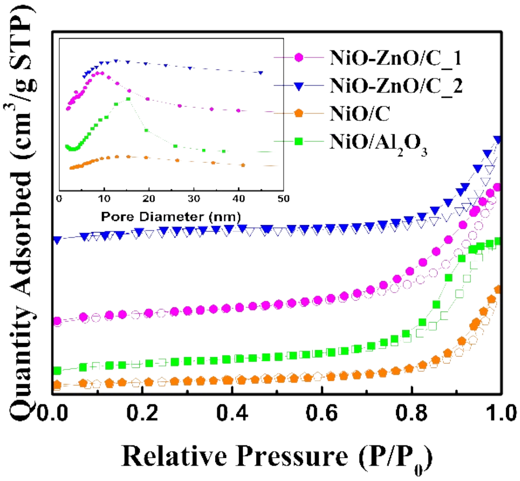

Fig. S4. N_2 adsorption-desorption isotherms and BJH pore size distributions of NiO–ZnO/C_1, NiO–ZnO/C_2, NiO/C and NiO/Al_2O_3.

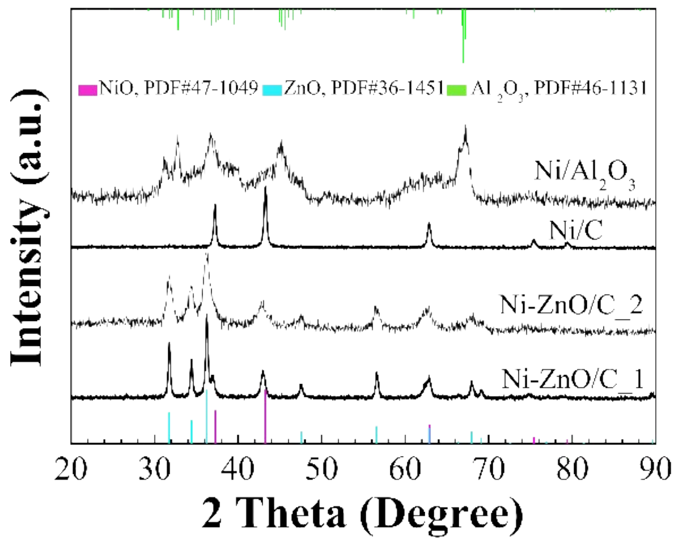

Fig. S5. PXRD patterns of Ni–ZnO/C_1, Ni–ZnO/C_2, Ni/C, Ni/Al_2O_3, hexagonal structure of ZnO, cubic structure NiO, delta Al_2O_3, and theta Al_2O_3.

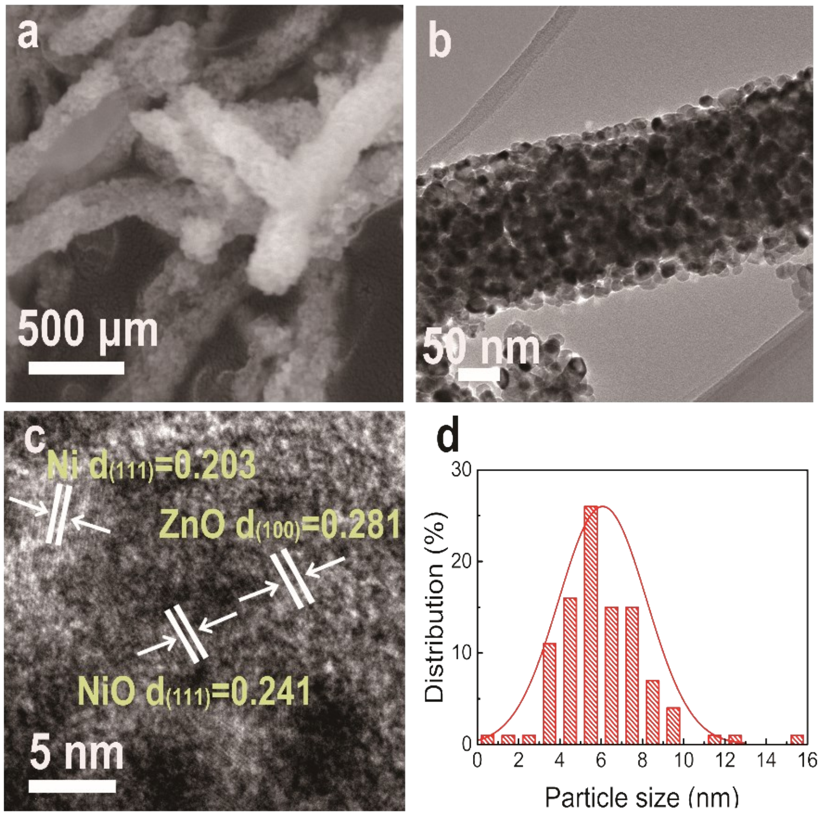

Fig. S6. SEM images (a), TEM images (b), high-resolution TEM images (c), and particle size distribution histogram (d) of Ni–ZnO/C_2.

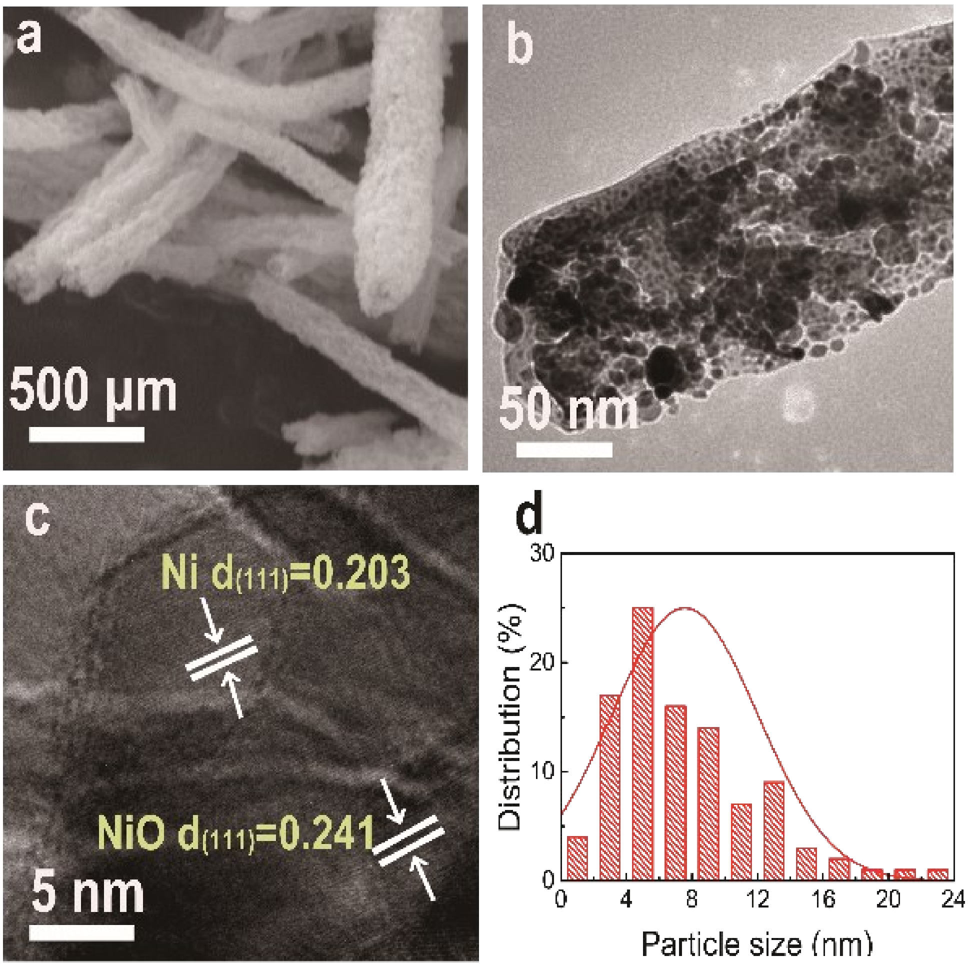

Fig. S7. SEM image (a), TEM image (b), high-resolution TEM image (c), and particle size distribution histogram (d) of Ni/C.

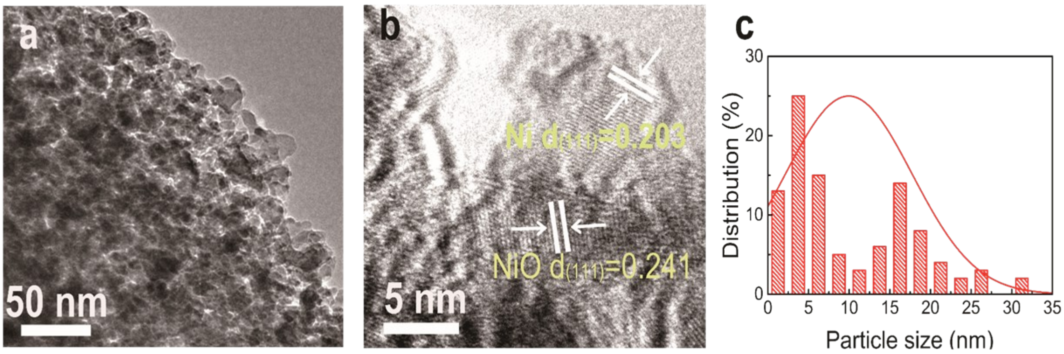

Fig. S8. TEM image (a), high-resolution TEM image (b), and particle size distribution histogram (c) of Ni/Al_2O_3.

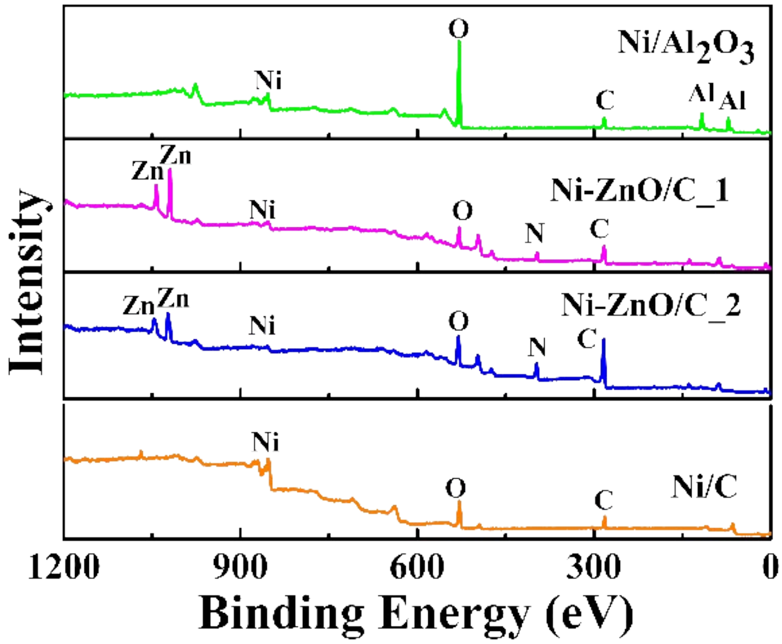

Fig. S9. XPS survey spectra of Ni–ZnO/C_1, Ni–ZnO/C_2, Ni/C and Ni/Al_2O_3.

Table S1. Chemical compositions and physical properties of Ni–MOF-5_1, Ni–MOF-5_2, and Ni–MOF-5_3.

Material	Feed to MOF Synthesis (mmol)		Ni/Zn Molar Ratio
	Ni	Zn	
Ni–MOF-5_1	0.76	2.28	1:3
Ni–MOF-5_2	1.06	1.98	1:2
Ni–MOF-5_3	1.52	1.52	1:1

Table S2. Chemical compositions and physical properties of different catalysts.

Catalysts	Chemical Compositions (wt%)		BET Surface Area (m^2/g)	Pore Size (nm)	Pore Volume (cm^3/g)
	Ni	Zn			
Ni–ZnO/C_1	13.2	34.6	96.65	11.21	0.21
Ni–ZnO/C_2	17.2	27.1	49.63	18.96	0.12
Ni/C	20.1	-	29.00	18.50	0.10
Ni/Al_2O_3	13.7	1.36	120.78	12.40	0.39