materials

Facile Fabrication of ZnO-$ZnFe_2O_4$ Hollow Nanostructure by a One-Needle Syringe Electrospinning Method for a High-Selective H_2S Gas Sensor

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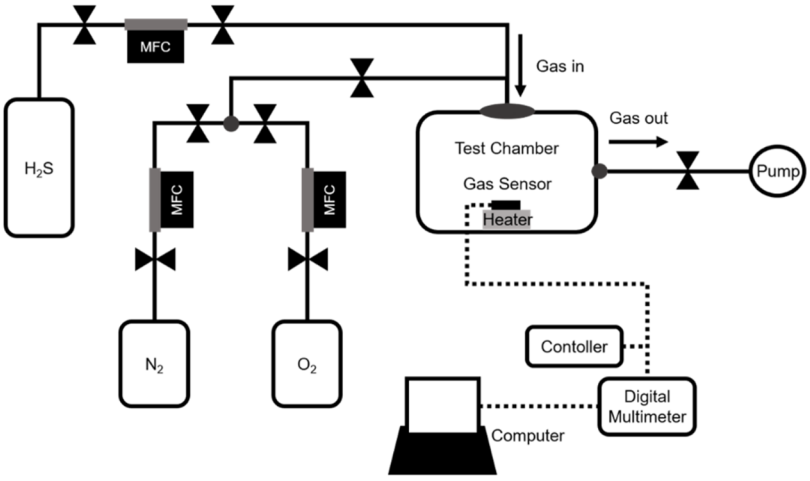

Figure S1. A schematic of the gas sensor measurement system.

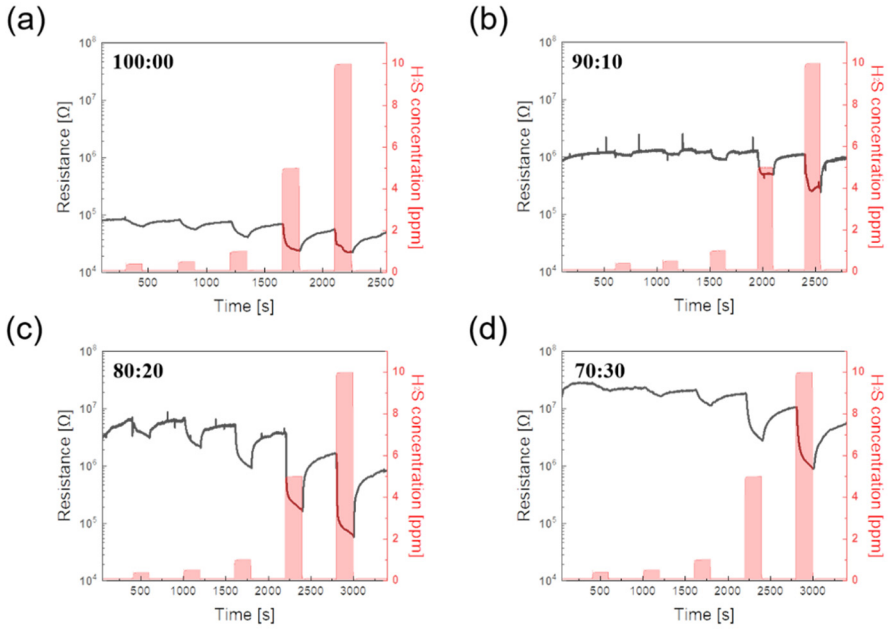

Figure S2. Gas sensing characteristics of ZnO-$ZnFe_2O_4$ nanotubes with different precursor ratio with Zn and Fe; (a) 100:00, (b) 90:10, (c) 80:20, and (d) 70:30 to H_2S gas in the range of 300 ppb – 10 ppm at 250 °C.

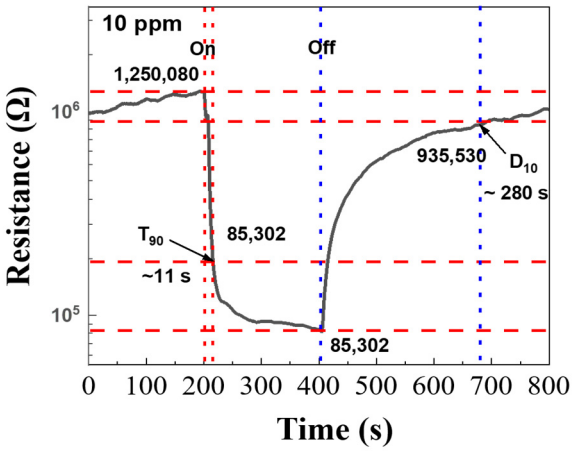

Figure S3. Response and recovery properties of the ZnO-$ZnFe_2O_4$ hollow nanofiber under 10 ppm H_2S gas at 280 °C.

Table S1. Selectivity data of the gas sensors fabricated with different ratios of Zn and Fe at conditions of 10 ppm of H_2S gas and 250 °C.

Ratios of Zn and Fe Precursors	Response ($S = R_a/R_g$)
100:0	4.05
90:10	4.91
80:20	84.5
70:30	30.95

Table S2. Comparisons of the $ZnFe_2O_4$ nanostructure-based H_2S gas sensors.

#	Types of the $ZnFe_2O_4$ nanostructures	Concentration (ppm)	Operating Temperature (°C)	Response ($S = R_g/R_a$)	Reference
1	$ZnFe_2O_4$ nanoparticle	10	135	23.3	[1]
2	Cu-doped $ZnFe_2O_4$ nanoparticle	10	100	18	[2]
3	Au-doped ZnFe2O4 microspheres	200	25	65.9	[3]
4	ZnFe2O4 nanoparticle	100	260	64	[4]
5	ZnO-ZnFe2O4 hollow nanostructure	10	250	84.5	This Work

References

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