Supporting Information for:

Flower-like Hydroxyfluoride Sensing Platform towards NO₂ Detection

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Figure S1. (a)The TG curve of ZnOHF, (b)XRD pattern of sample calcined by ZnOHF.



Figure S2. Low resolution SEM image of ZF20.



Figure S3. SEM image of the samples: (a) ZF10, (b) ZF15, (c) ZF20, (d) ZF25.



Figure S4. N₂ adsorption-desorption isotherms and surface areas of (a) ZF10, (b) ZF15,

(c) ZF20, (d) ZF25.



Figure S5. (a) XPS wide spectrum, (b) Zn 2p region, (c) O 1s region of raw material ZnO.



Figure S6. (a) The UV-vis diffuse reflectance spectra and(b) the VB-XPS spectrum of ZnOHF.



Figure S7. The response curves of samples (a) ZF20, (b) ZnO at 200°C to 10 ppm SO₂, CH₄, H₂, CO and CO₂.

Table S1. The gas sensing data of ZF20 to 10 ppm gases at 200°C.

Gas species	S (R _a /R _g)	T _{res} /T _{rec} (s/s)
SO ₂	1.09	58/10
CH_4	1.43	46/8
H ₂	1.34	100/7
СО	1.30	5/11
CO ₂	1.09	24/10

Gas species	S (R _a /R _g)	T _{res} /T _{rec} (s/s)
SO ₂	10.66	36/100
CH₄	1.37	52/24
H ₂	3.97	30/63
СО	3.44	128/21
CO ₂	1.35	23/32

Table S2. The gas sensing data of ZnO to 10 ppm gases at 200°C.



Figure S8. The resistance curves of samples in the process of gas sensitivity to 10ppm NO_2 at 200 °C.



Figure S9. The response of ZF20 to 10 ppm NO2 at 200 °C in different relative humidity