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ZnO twin-rods decorated with Pt nanoparticles for butanone detection

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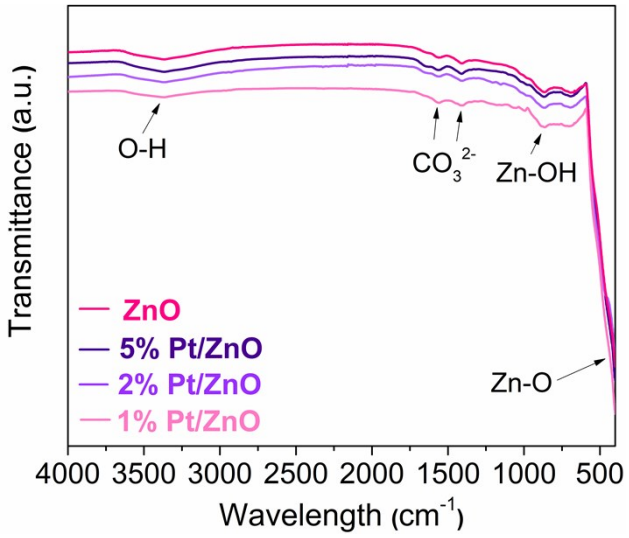

Fig. S1 FTIR spectra of pure ZnO and Pt/ZnO heterostructures.

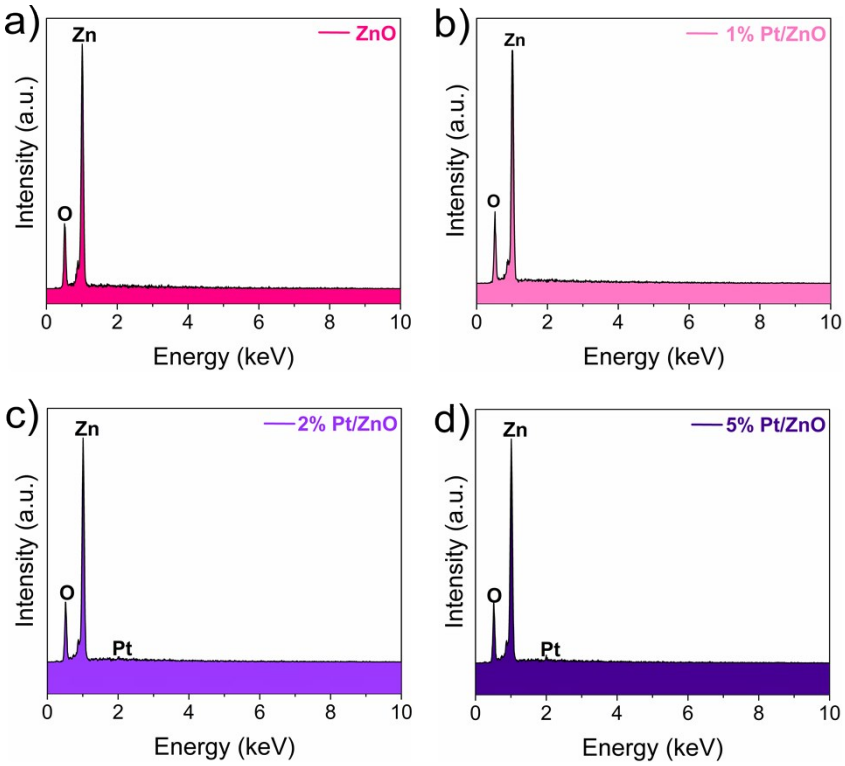

Fig. S2 EDS Spectra of (a) pure ZnO; (b) 1% Pt/ZnO; (c) 2% Pt/ZnO; and (d) 5% Pt/ZnO.

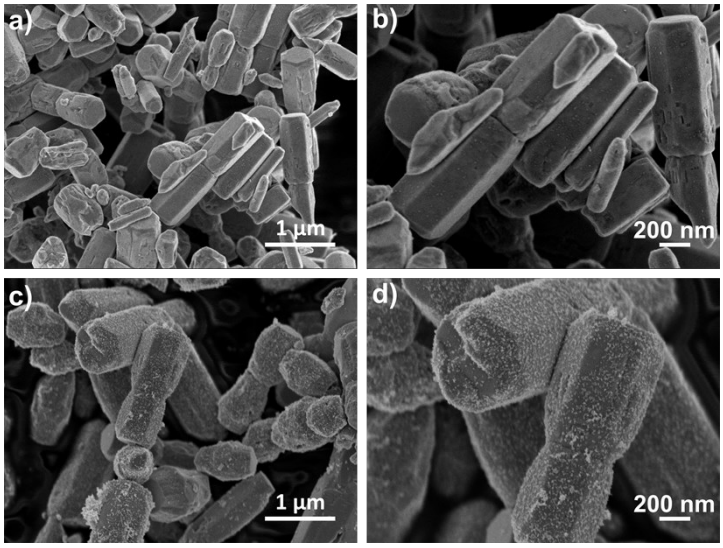

Fig. S3 FESEM images for the (a-b) 1% Pt/ZnO; and (c-d) 5% Pt/ZnO.

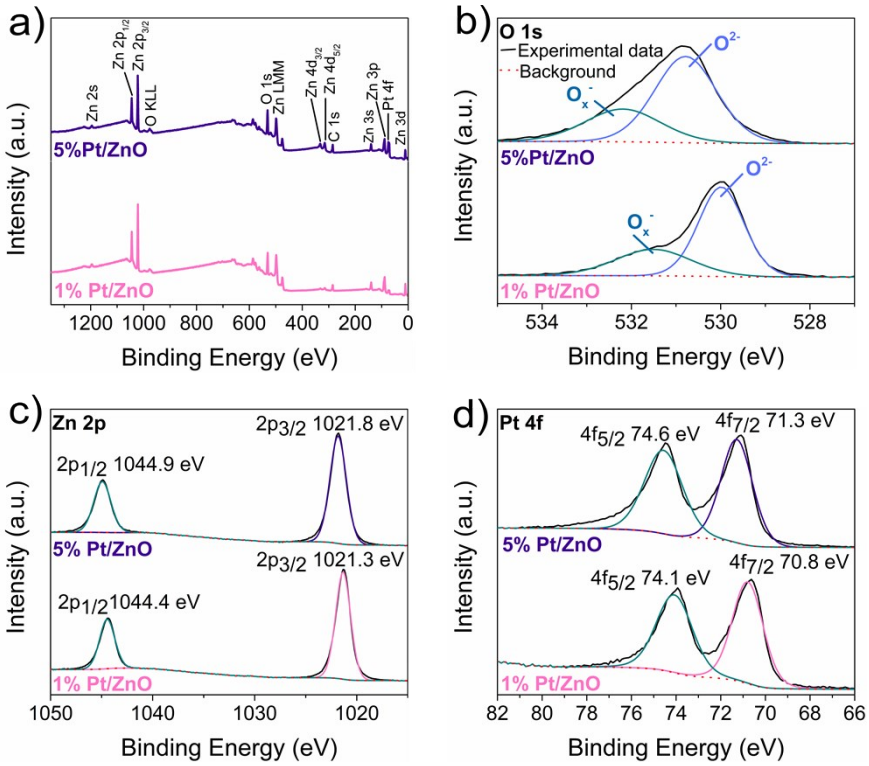

Fig. S4 (a) Survey scan XPS spectra of 1% Pt/ZnO and 5% Pt/ZnO. High-resolution XPS spectra of (b) O 1s, (c) Zn 2p, and (d) Pt 4f.

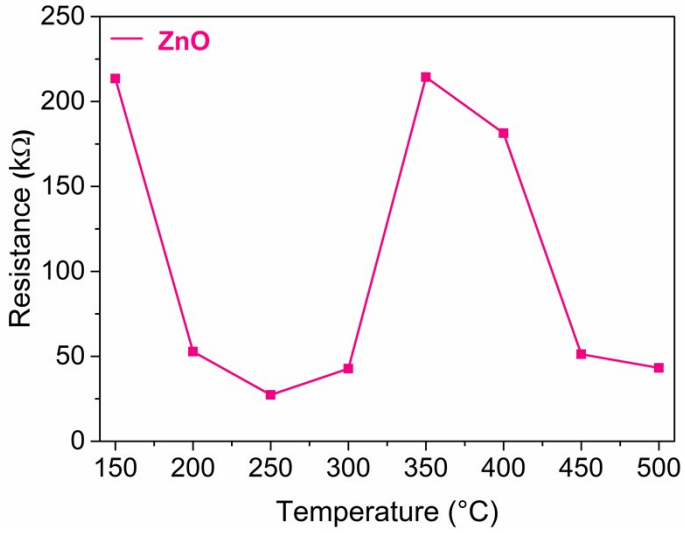

Fig. S5 Changes in R_{air} as a function of the operating temperature for ZnO twin-rods.

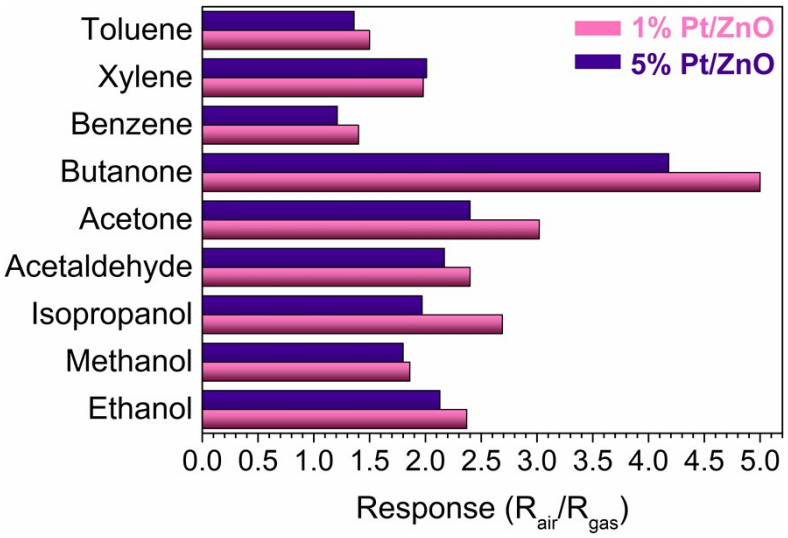

Fig. S6 Response to different VOCs at 450 °C for the sensors based on 1% and 5% Pt/ZnO.

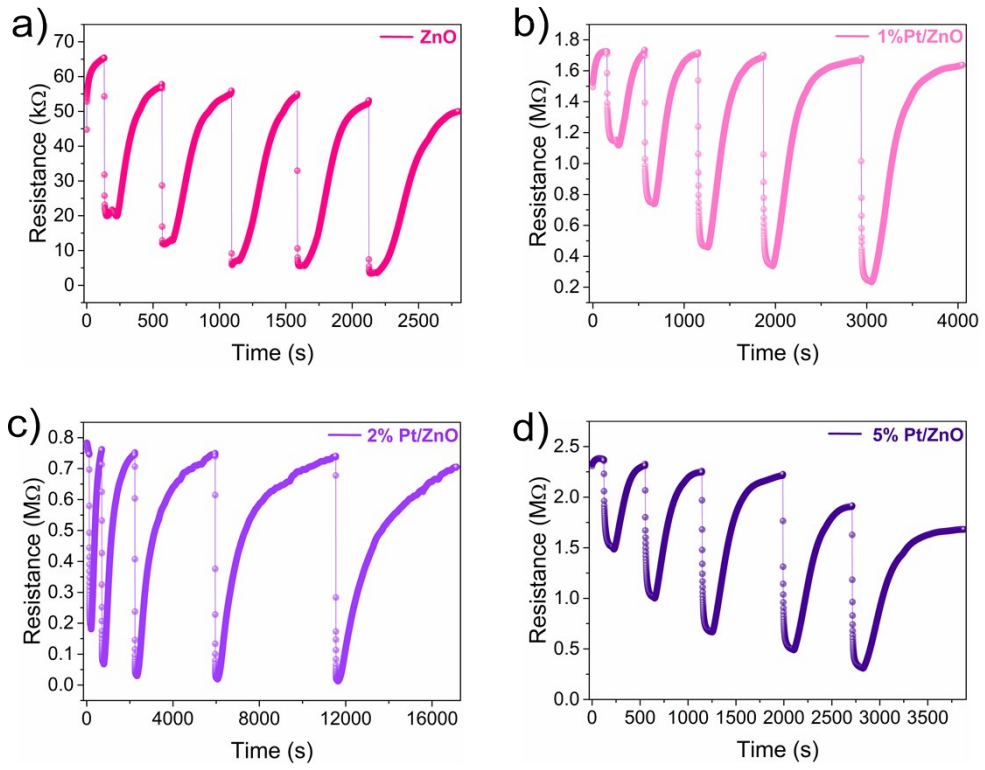

Fig. S7 Response-recovery curves exhibited in terms of resistance for different concentrations of butanone (5–200 ppm) for sensors based on (a) pure ZnO; (b) 1% Pt/ZnO; (c) 2% Pt/ZnO and (d) 5% Pt/ZnO.

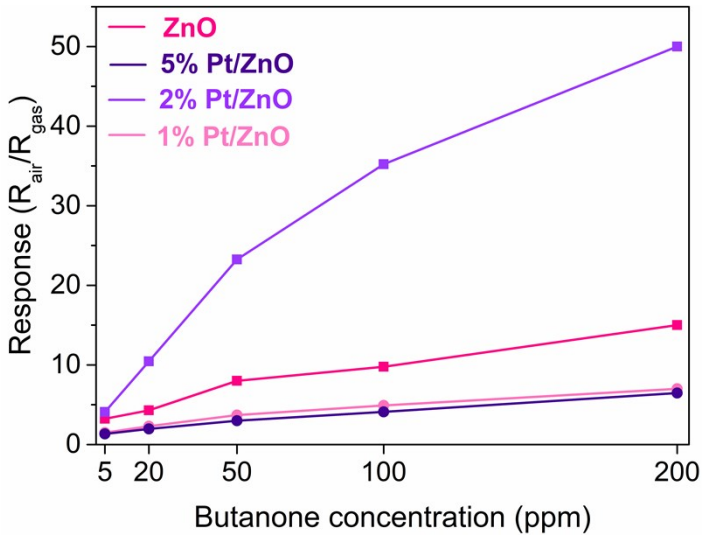

Fig. S8 Responses for ZnO and Pt/ZnO heterostructures at different concentrations of butanone.

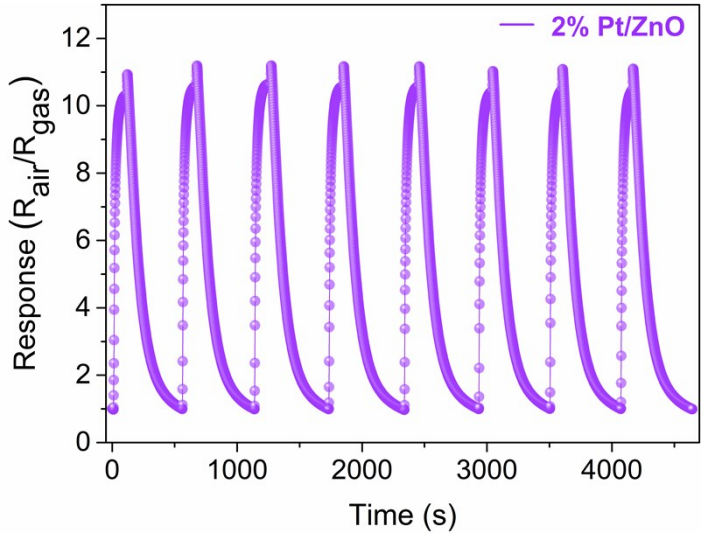

Fig. S9 Cyclic response curve for de sensor based on 2% Pt/ZnO to 20 ppm of butanone at 450 °C.

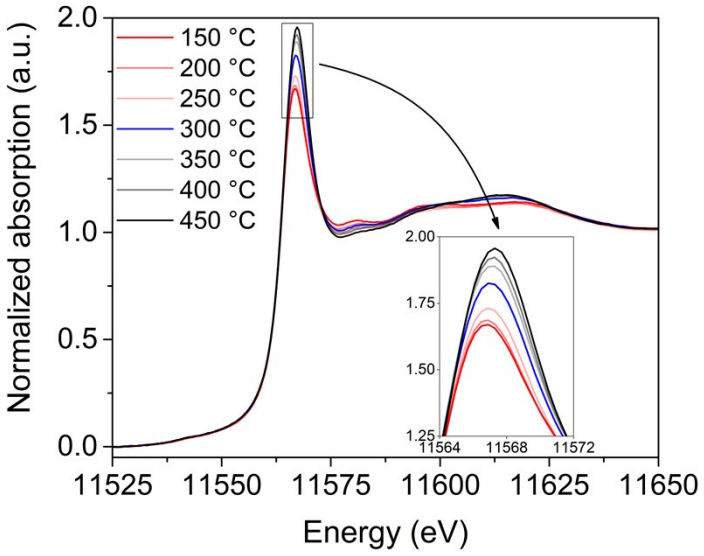

Fig. S10 XANES spectra of 5% Pt/ZnO recorded every 50 °C in the temperature range 150-450 °C. The inset shows details of the white line.