

## **Self-assembly of ZnO nanoparticles into hollow microspheres via a facile solvothermal route and their application as gas sensor†**

**Xiaoshuang Chen,<sup>a</sup> Xiaoyan Jing,<sup>a</sup> Jun Wang, <sup>\*a, b</sup> Jingyuan Liu,<sup>a</sup> Dalei Song<sup>a</sup> and Lianhe Liu<sup>b</sup>**

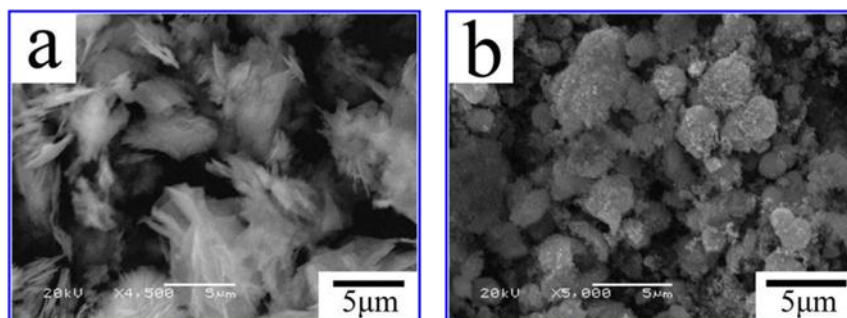
<sup>a</sup> *The Key Laboratory of Superlight Materials and Surface Technology, Ministry of Education, Harbin Engineering University, 150001, P.R. China. Tel: +86 451 8253 3026.*

*Fax: +86 451 8253 3026. E-mail address: [zhqw1888@sohu.com](mailto:zhqw1888@sohu.com)*

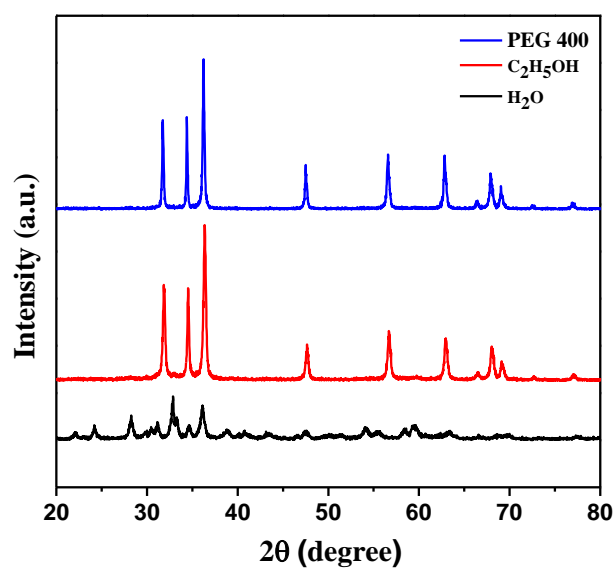
<sup>b</sup> *Institute of Advanced Marine Materials, Harbin Engineering University, 150001, P.R. China.*

\* Corresponding author: Tel.: +86 451 8253 3026. Fax: +86 451 8253 3026.

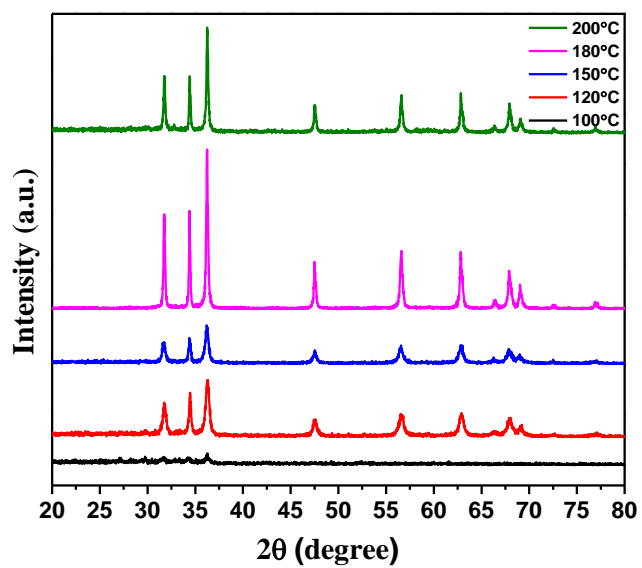
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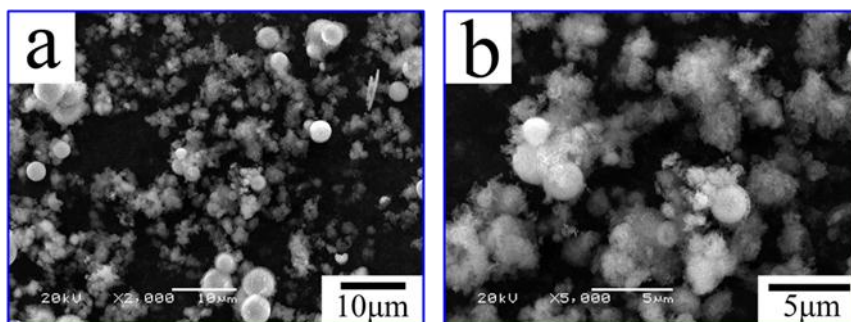
**Figure S1.** SEM images of the ZnO products obtained from the comparative experiments for different solvents at 180°C: (a) distilled water, and (b) absolute ethanol.



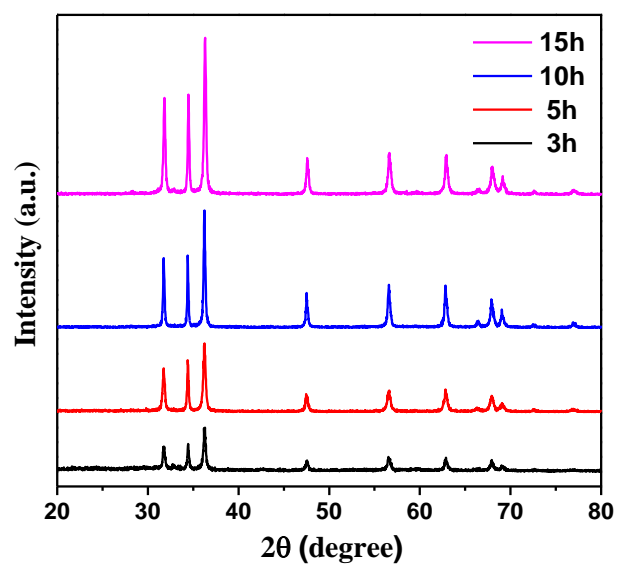
**Figure S2.** XRD patterns of the ZnO products for different solvents at 180°C.



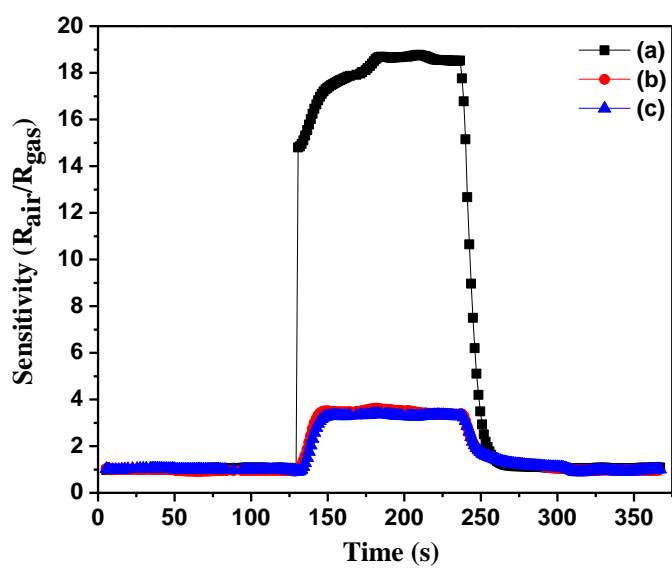
**Figure S3.** XRD patterns of the ZnO products prepared at different temperatures.



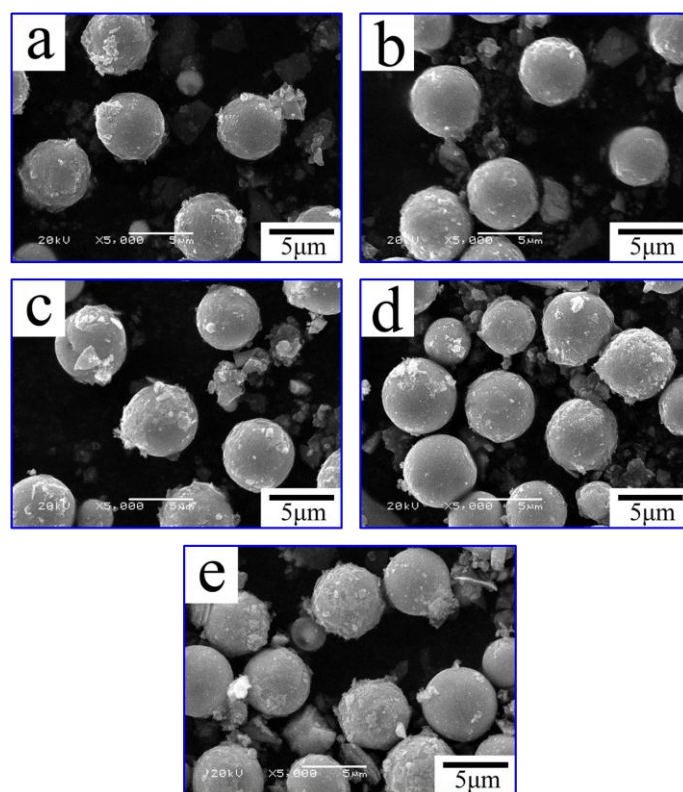
**Figure S4.** SEM images of the ZnO products prepared at 180 °C for 3h: (a) a low-magnification SEM image; (b) a high-magnification SEM image.



**Figure S5.** XRD patterns of the ZnO hollow spheres reacted for different times at 180°C.



**Figure S6.** Response-recovery curves of ZnO products for different solvents exposed to ethanol gas of 100 ppm at 320°C: (a) PEG 400, (b) absolute ethanol, and (c) distilled water.



**Figure S7.** SEM images of the ZnO products at five different annealing temperature zones: (a) 220°C, (b) 270°C, (c) 320°C, (d) 370°C, and (e) 420°C.