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## **Supporting Information**

## A bubble-templating strategy to construct CeO<sub>2</sub> aerogels and their potential application for fast detection of acetone

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**Figure S1** The photographs of (a) CeO<sub>2</sub>-N, (b) CeO<sub>2</sub>-0.125, (c) CeO<sub>2</sub>-A, (d) CeO<sub>2</sub>-0.50,

(e) CeO<sub>2</sub>-0.75 and (f) CeO<sub>2</sub>-1.0.



Figure S2 The XRD pattern of CeO<sub>2</sub>-C.



Figure S3 The low magnification TEM image of CeO<sub>2</sub>-A.



**Figure S4** The response and recovery curves of Co-CeO<sub>2</sub> sensor toward 500 ppm acetone at operated at (a) 290 °C, (b) 300 °C, (c) 310 °C, (d) 320 °C, (e) 330 °C, and the (f) relationship between the response value and operating temperature.



**Figure S5** The response and recovery curves of  $Co-CeO_2$  sensor toward (a) 500 ppm methanol, (b) 500 ppm CHCO, (c) 500 ppm ammonia, and the (d) histogram for these response values.