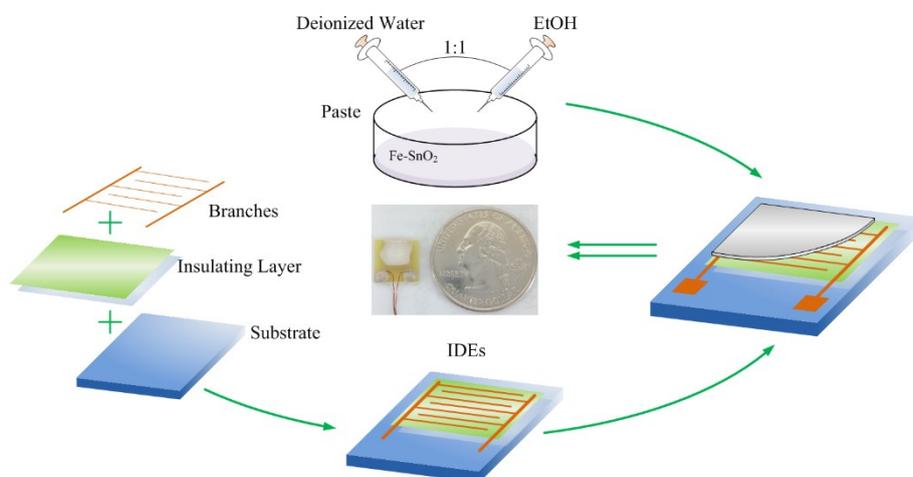


Ultrafast breathing humidity sensing property of the low-dimensional Fe-doped SnO₂ flower-like spheres

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1. Fabrication of humidity sensors



Scheme S1. The fabrication route of SnO₂ flower-like nanosphere humidity sensors.

2. FESEM image

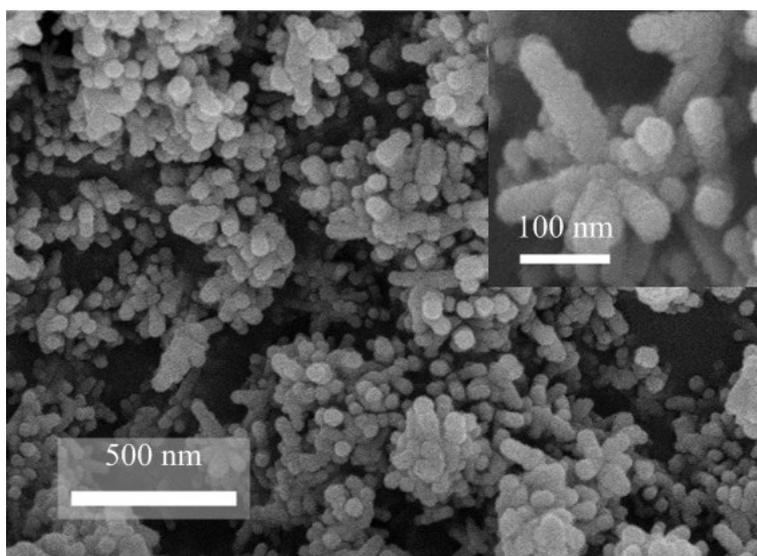


Fig. S1. FESEM image of 5% Fe-doped SnO₂ hierarchical nanostructure.

3. EDX pattern

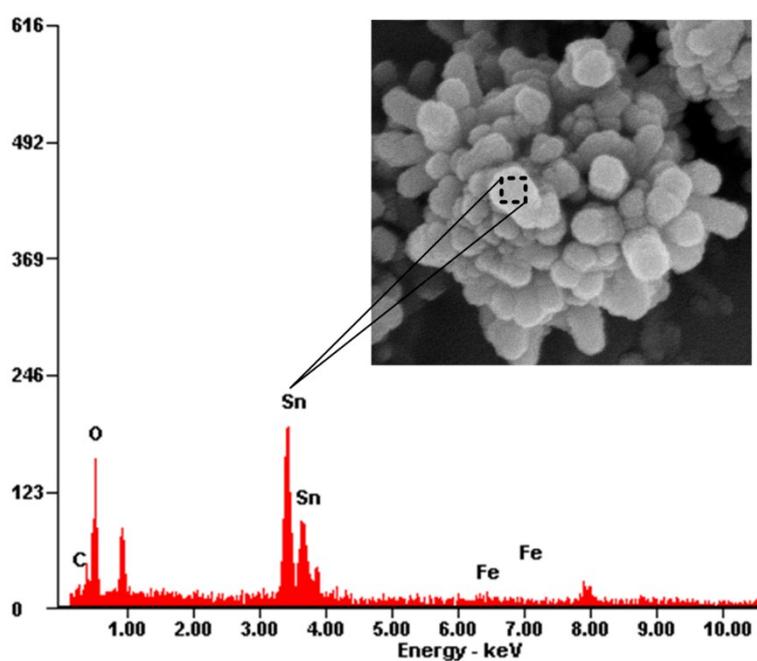


Fig. S2. EDX pattern of the branch (nanorod) of 2% Fe-doped SnO₂ flower-like nanosphere.

4. TG curves

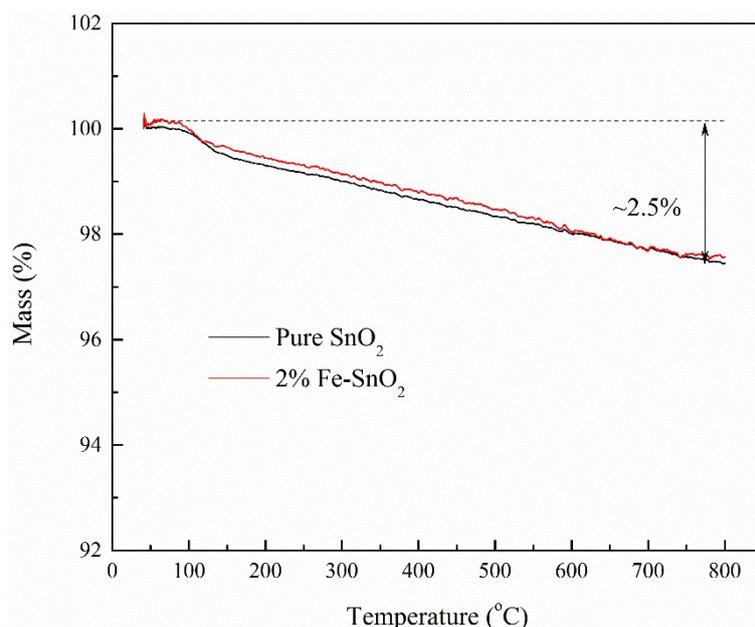


Fig. S3. TG curves of pure and 2% Fe-doped SnO₂ samples.

According to the TG curves, weight loss in the range of 40 – 300 °C (~1%) could be attributed to desorption of water. On the basis of the total weight loss of samples, the mass loss ratio is about 1.5% at the whole testing temperature (40 – 800 °C), which is represented the SnO₂ thermal stable nanostructures.

5. Response/recovery curves

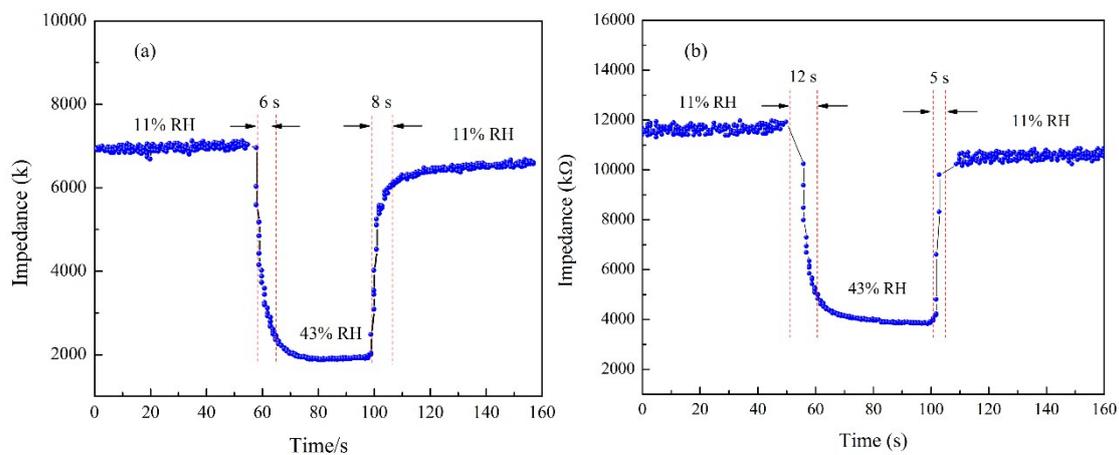


Fig. S4. Response/recovery curves of the (a) pure and (b) 2% Fe-doped SnO₂ film sensors at 43% RH.

6. Complex impedance plots

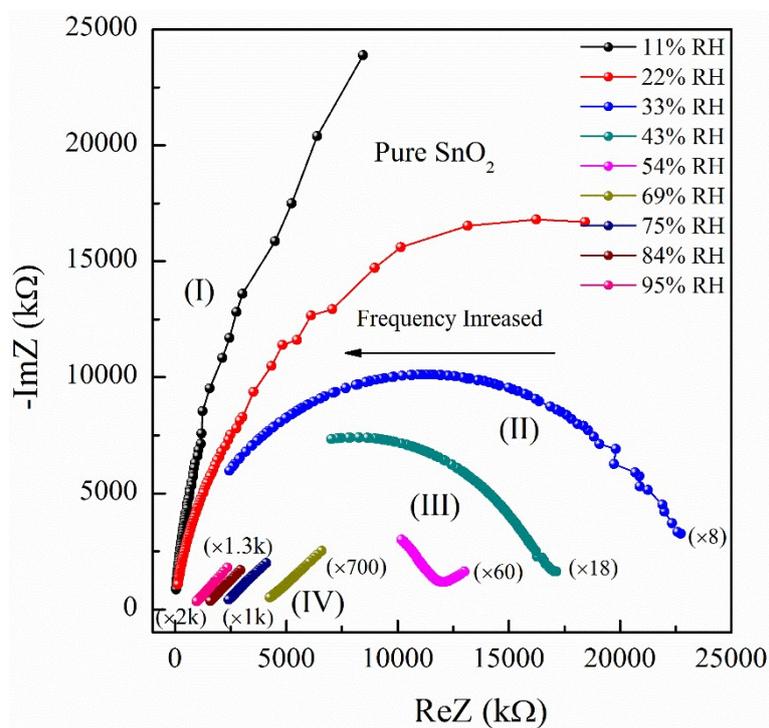


Fig. S5. The complex impedance plots of pure SnO₂ flower-like nanospheres sensors at various RHs.