

## Supplementary Information

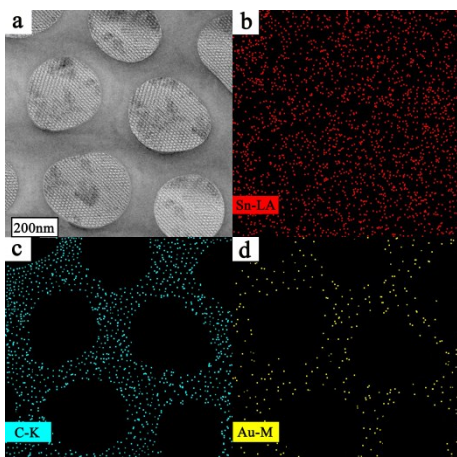
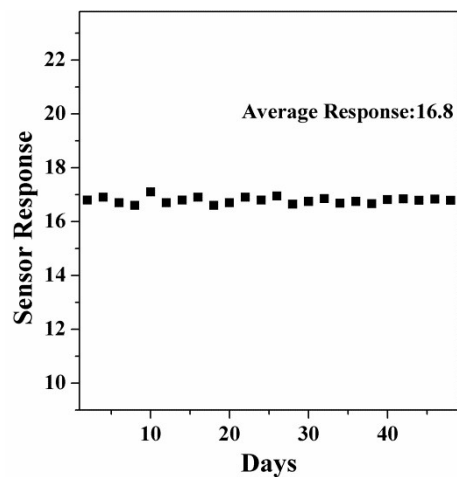


Fig. S1. (a) STEM image of Au@SnO<sub>2</sub>/C<sub>60</sub>/SnO<sub>2</sub> nanocomposite film and (b, c, d) corresponding elemental maps of Sn, C and Au elements.



5

Fig. S2 Long-term stability of response of the ethanol gas sensor based on Au@SnO<sub>2</sub>/C<sub>60</sub>/SnO<sub>2</sub> nanocomposite film in 0.5 ppm of ethanol gas.

Table S1 Ethanol sensor response of the recently developed semiconductor sensors consisting of a variety of materials.

Sensing materials	Temperature (°C)	C <sub>ethanol</sub> (ppm)	S (R <sub>s</sub> /R <sub>g</sub> )	Response time (s)
SnO <sub>2</sub> /RGO film <sup>10</sup>	300	0.5	0.5	\
SnO <sub>2</sub> -TiO <sub>2</sub> <sup>37</sup>	43	1	1.2	2400
Ag@SnO <sub>2</sub> <sup>35</sup>	RT	0.5	0.3	52
RGO/SnO <sub>2</sub> <sup>38</sup>	RT	0.5	0.2	300
SnO <sub>2</sub> -PDDAC <sup>39</sup>	RT	1	0.3	88
Porous C/SnO <sub>2</sub> <sup>11</sup>	RT	0.5	2.4	100
In this work	RT	0.5	16.8	36

10