Supplementary Information for

## Superior Gas-Sensing Performance of Amorphous CdO Nanoflake Arrays Prepared at Room Temperature

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Fig. S1. XPS survey spectrum of the a-NFAs.



Fig. S2. XPS narrow-scan spectrum showing the binding energies of Cd 3d.



Fig. S3. EELS spectrum of a-NFAs.



Fig. S4. (a) Mott - Schottky plot of CdO a-NFAs, (b) fitting of the linear region of the plot.



**Fig. S5.** Gas response of CdO NFAs to 200 ppm of DEE measured at different operating temperatures.



Fig. S6. Response of sensor with a-NFAs repeatedly exposed to DEE with concentration of 200 ppm.



Fig. S7. Effect of humidity on sensor's performance. Response at different humidity values is shown.



**Fig. S8.** Sensing performance of amorphous CdO nanoparticles CBD-prepared on a rough surface. The target gas was 200 ppm of DEE.



Fig. S9 Extremely low response of sensor with a-NFAs to (a) isopropanol, (b) ethanol and (c) acetone.



**Fig. S10** SEM images of (a) as-prepared a-NFAs and (b) a-NFAs after being heated for 24 h (at 175 °C) and tested for 12 h. (c) XRD patterns of the samples shown in (a) and (b).



**Fig. S11** Long-term performance (base resistance and response) of the sensor over 30 cycles, each consisting of non-stop run for 8 h with 200 ppm DEE at 175 °C and 16 h of exposure to air.



**Fig. S12** Response of sensor annealed at 275 °C to 200 ppm of (a) isopropanol, (b) ethanol and (c) DEE.



**Fig. S13** Response of sensor annealed at 350 °C to 200 ppm of (a) isopropanol and (b) ethanol. The operation temperature was 270 °C (optimum working temperature).