

Supporting Information

ZnO Nanoarrays via a Thermal Decomposition-Deposition Method for Sensitive and Selective NO₂ detection

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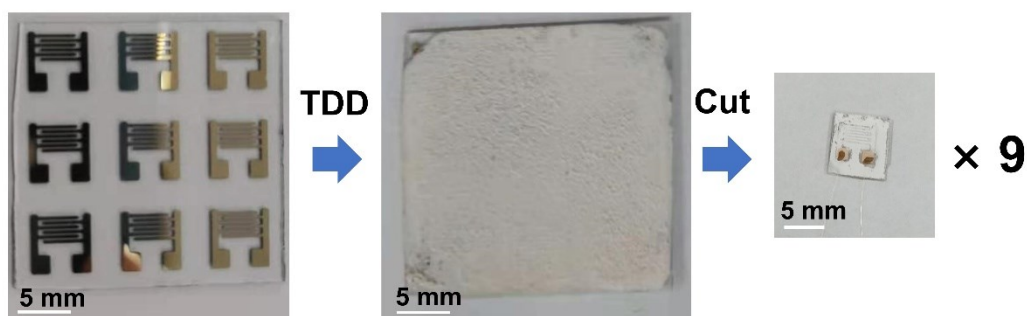


Figure S1. The growth of self-assembled ZnO nanoarrays on a large area substrate.

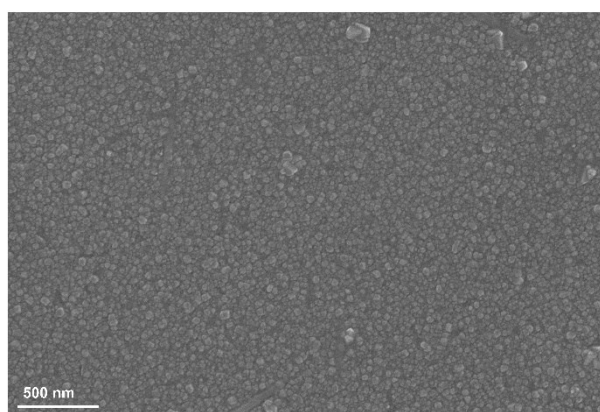


Figure S2. The SEM image of dense ZnO film deposited by ALD.

Preparation of dense ZnO films

The dense ZnO film was grown on SiO₂/Si wafer by atomic layer deposition (ALD). Diethyl zinc (DEZn) and H₂O were used as the precursor for Zn and O. In order to prevent condensation of the precursors during the purging process, the temperature of the feed container was set to 150 °C. The substrate temperature was also set as 150 °C. DEZn and H₂O were fed into the ALD reactor in sequence with a typical pulse times of 0.02 and 0.1 s. Both of the exposure times were set as 8 s. The high purity nitrogen (99.999%) purge time between the sequential pulses was 25 s. After 150 ALD cycles, the ZnO film was obtained. Then the dense ZnO film was annealed at 500 °C for 2 h with the heating rate of 10 °C/min in air.

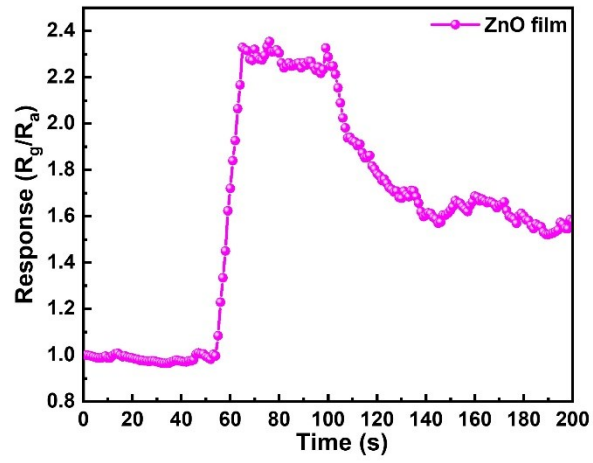


Figure S3. The response of dense ZnO film to 10 ppm NO₂ at 140 °C.