Electronic Supplementary Material (ESI) for RSC Advances.

"Close network" effect of ZnO Micro/nanoporous array allows high UV-irradiated NO_2 sensing performances

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Figure S1. Xingsong Su et al

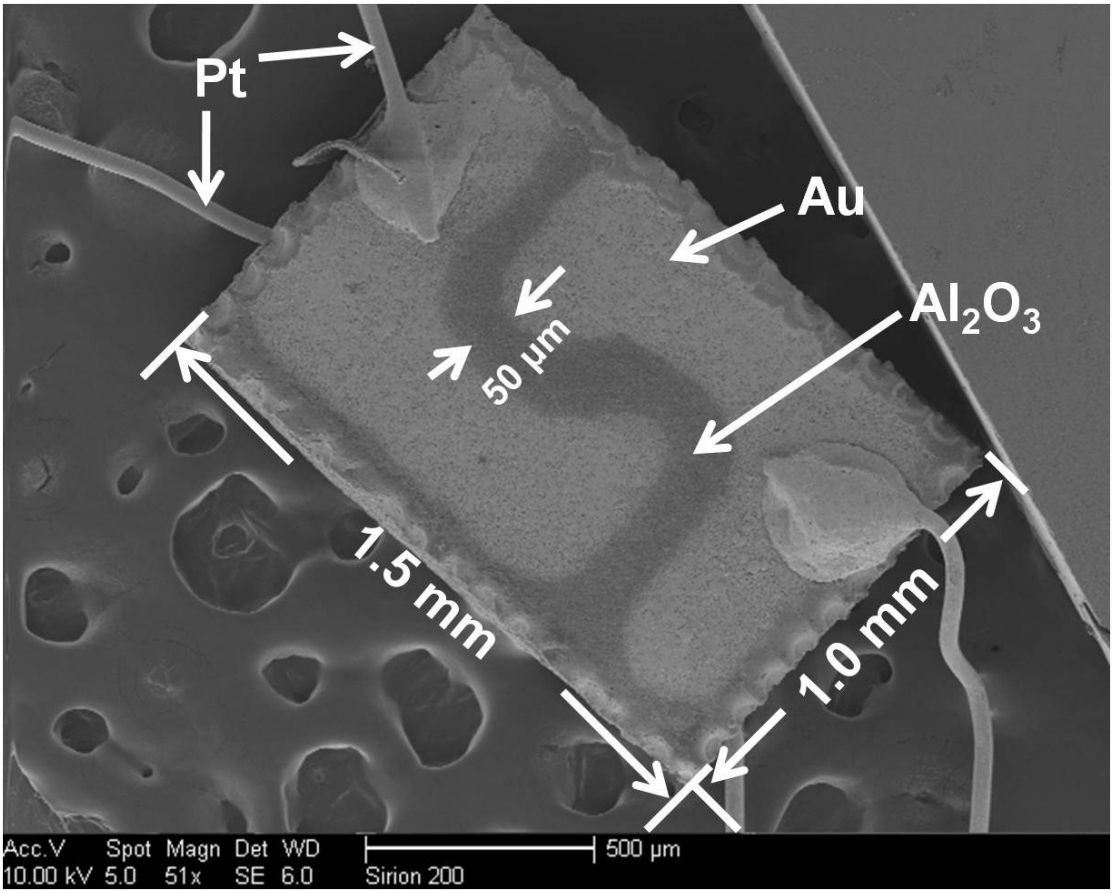

Figure S1 FE-SEM image of Al_2O_3 flat ceramic substrate.

Figure S2. Xingsong Su et al

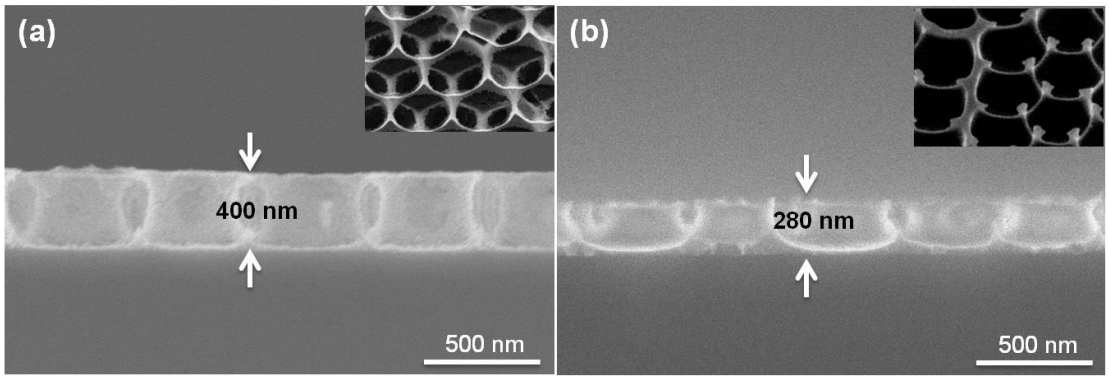

Figure S2 Cross-sectional FESEM images of the CNPAF and BLPAF. The insets are oblique FEMSEM images.

Figure S3. Xingsong Su et al

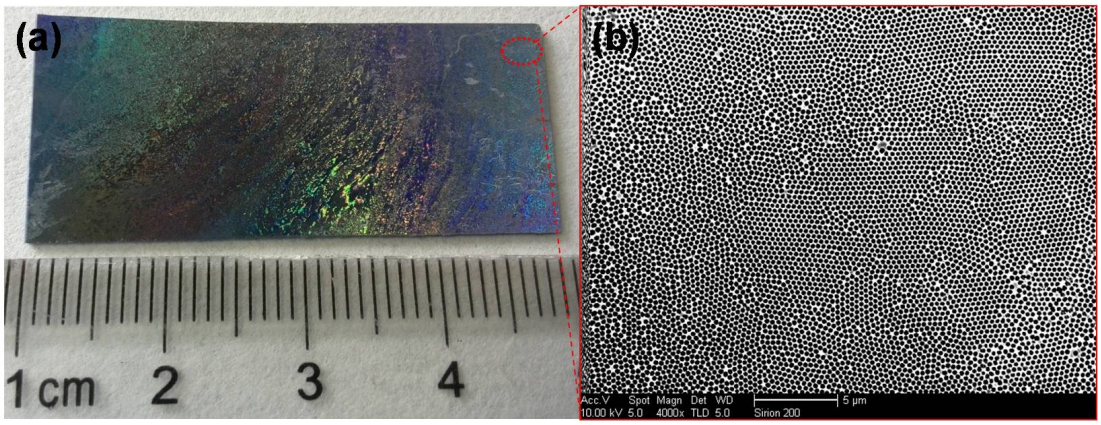

Figure S3 (a) Photo of the large-area close-network micro/nanoporous arrays film on silcon wafer using the PS-MCC method. (b) The corresponding FE-SEM image of large-scale close-network micro/nanoporous arrays film.

Figure S4. Xingsong Su et al

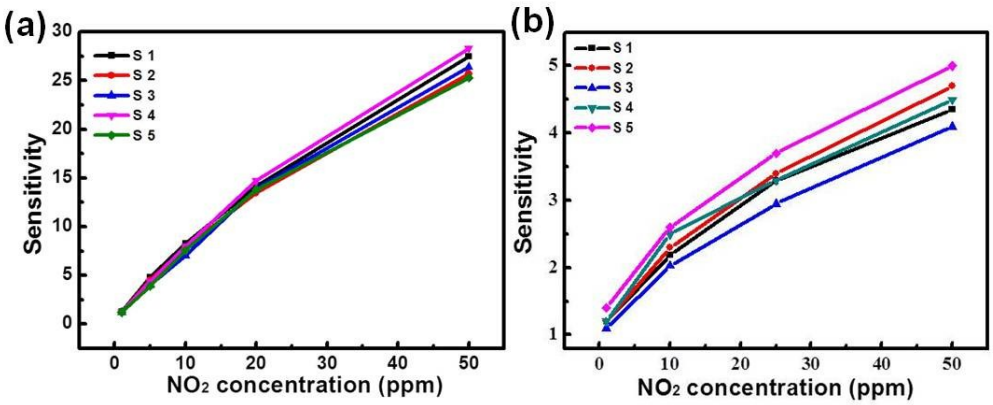

Figure S4 Sensitivity versus NO_2 concentration of five samples with different structure at room temperature under UV irradiation: (a) CNPAF; (b) BLPAF.

Figure S5. Xingsong Su et al

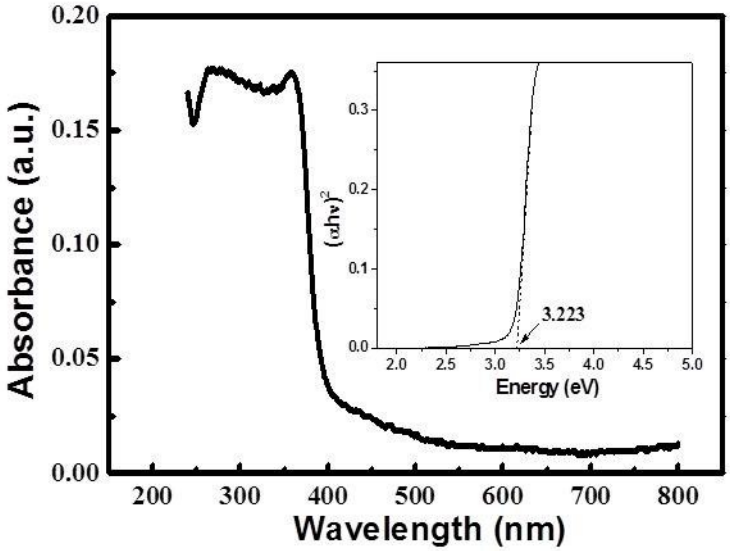

Figure S5 Absorbance spectra of ZnO CNPAF. The inset is Tauc's plot, i.e., $(\alpha hv)^2$ vs. photon energy for ZnO CNPAF.

Table S1. Xingsong Su et al

Table 1. Comparison of performances of ZnO-based nanostructured NO_2 gas sensors.

Morphology	**Gas concentration (ppm)**	**Response time (s)**	**Recovery time (s)**	**Gas response (R_g/R_a)**	**Working temperature (°C)**
Nanorod[1]	0.1~100	~30	~150	2~30	100~250
Pencil-like nanorod [2]	40			239.5	400
Needle-like nanorod [2]	40			184.5	400
Flower-like nanorod [2]	40			44.8	400
Nanowire [3]	1~10	~120		1.1~19.1	200
Nansheet [4]	1-5	~6	~320	1.1~1.36	RT
BLPAF	0.1~50	~120	~200	1.1~5	RT
CNPAF	0.1~50	~15	~30	1.1~27	RT