Supplementary Information for

## Atomic structure dominated enhancement of acetone sensing for a ZnO nanoplate with highly exposed (0001) facet

Mingjing Wang, Zhurui Shen\*, Yalu Chen, Ying Zhang, Huiming Ji\*

Key Laboratory of Advanced Ceramics and Machining Technology, Ministry of

Education, School of Materials Science and Engineering, Tianjin University, Tianjin

300072, PR China



Fig. S1. TEM image of an individual NP-ZnO particle, the rectangular part highlighted the HRTEM analysis region in Fig. 2c.



Fig. S2 SEM images of C-ZnO.



Fig. S3 Schematic illustration of the formation process of NP-ZnO



Fig. S4 SEM photos of NS-ZnO with different reaction time (a) 1h; (b) 2h; (c) 4h; (d) 8h



Fig. S5 Sensing transient curves of (a) NS-ZnO and (b) C-ZnO sensors to different concentration of acetone; response and recovery curves of (c) NS-ZnO and (d) C-ZnO sensors to 100 ppm acetone.