

# Highly Sensitive and Selective MEMS Gas Sensor Based on WO<sub>3</sub>/Al<sub>2</sub>O<sub>3</sub>/Graphite for 2-Chloroethyl Ethyl Sulfide (2-CEES) Detection

Liangpan Yang <sup>1,†</sup>, Wangze Cheng <sup>1,†</sup>, Wenlong Yan <sup>1</sup>, Li Wen <sup>2,\*</sup>, Changyue Xia <sup>1,3</sup>, Chuang Sun <sup>1,3</sup>, Doumeng Hu <sup>1,\*</sup>, Yunong Zhao <sup>1</sup>, Xiaohui Guo <sup>1,3</sup>, Wei Zeng <sup>1,3</sup> and Siliang Wang <sup>1,3</sup>

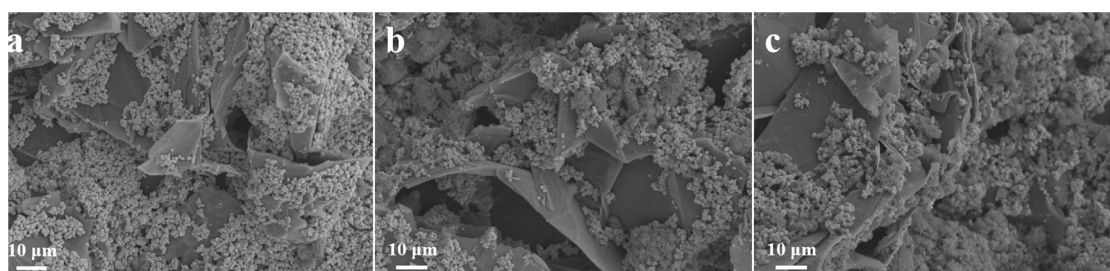
<sup>1</sup> Information Materials and Intelligent Sensing Laboratory of Anhui Province & Industry-Education-Research Institute of Advanced Materials and Technology for Integrated Circuits, Anhui University, Hefei 230601, China; ylp@ahu.edu.cn (L.Y.); wb22201006@stu.ahu.edu.cn (W.C.); p20301217@stu.ahu.edu.cn (W.Y.); p21301131@stu.ahu.edu.cn (C.X.); p21301240@stu.ahu.edu.cn (C.S.); zhaoyun@ahu.edu.cn (Y.Z.); guoxh@ahu.edu.cn (X.G.); zengwei@ahu.edu.cn (W.Z.); wangsl@ahu.edu.cn (S.W.)

<sup>2</sup> Center for Nanoscale Characterization & Devices (CNCD), School of Physics and Wuhan National Laboratory for Optoelectronics (WNLO), Huazhong University of Science and Technology (HUST), Wuhan 430074, China

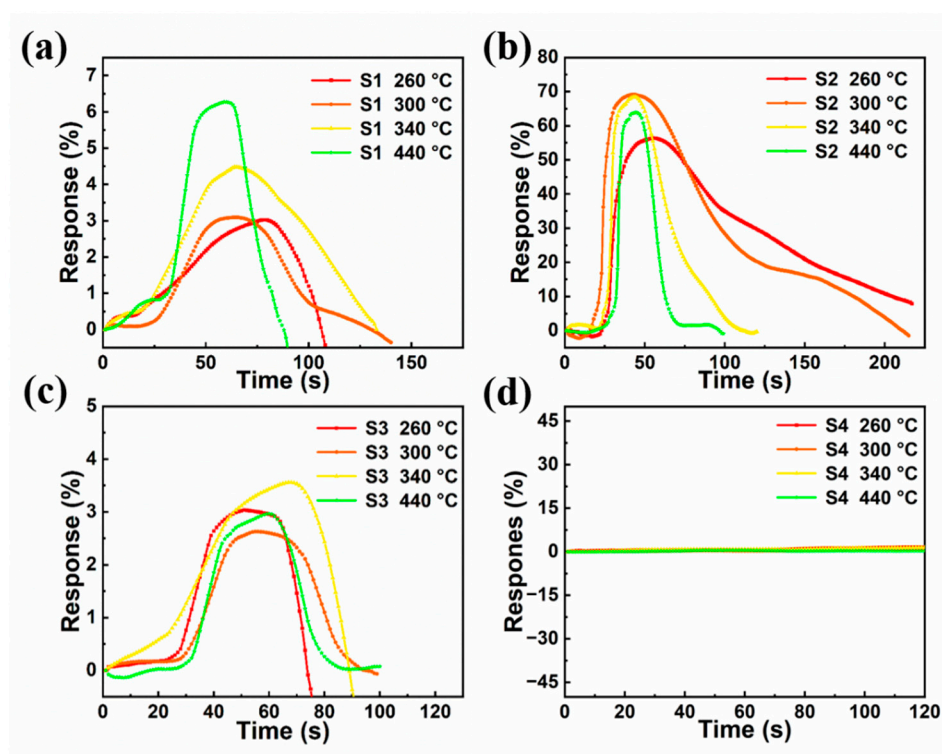
<sup>3</sup> East China Institute of Photo-Electron ICs, Suzhou 215163, China

\* Correspondence: d202080082@hust.edu.cn (L.W.); hdm@ahu.edu.cn (D.H.)

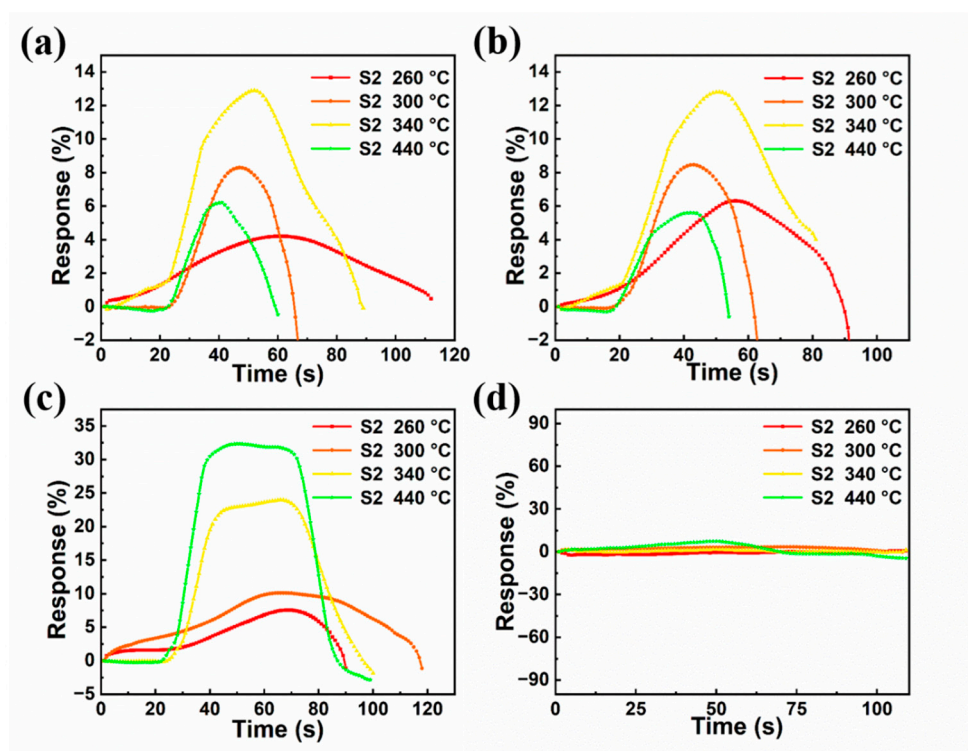
† These authors contributed equally to this work.



**Figure S1.** SEM images of sample S1-S4. (a) S1, (b) S3 and (c) S4.



**Figure S2.** Sensing responses of the sensor based on samples S1-S4 to 5.70 ppm of 2-CEES at different temperatures. (a) S1, (b) S2, (c) S3 and (d) S4.



**Figure S3.** Response of the sensor based on sample S2 to ammonia, ethanol, acetone and acetonitrile. (a) Ammonia, (b) ethanol, (c) acetone and (d) acetonitrile.