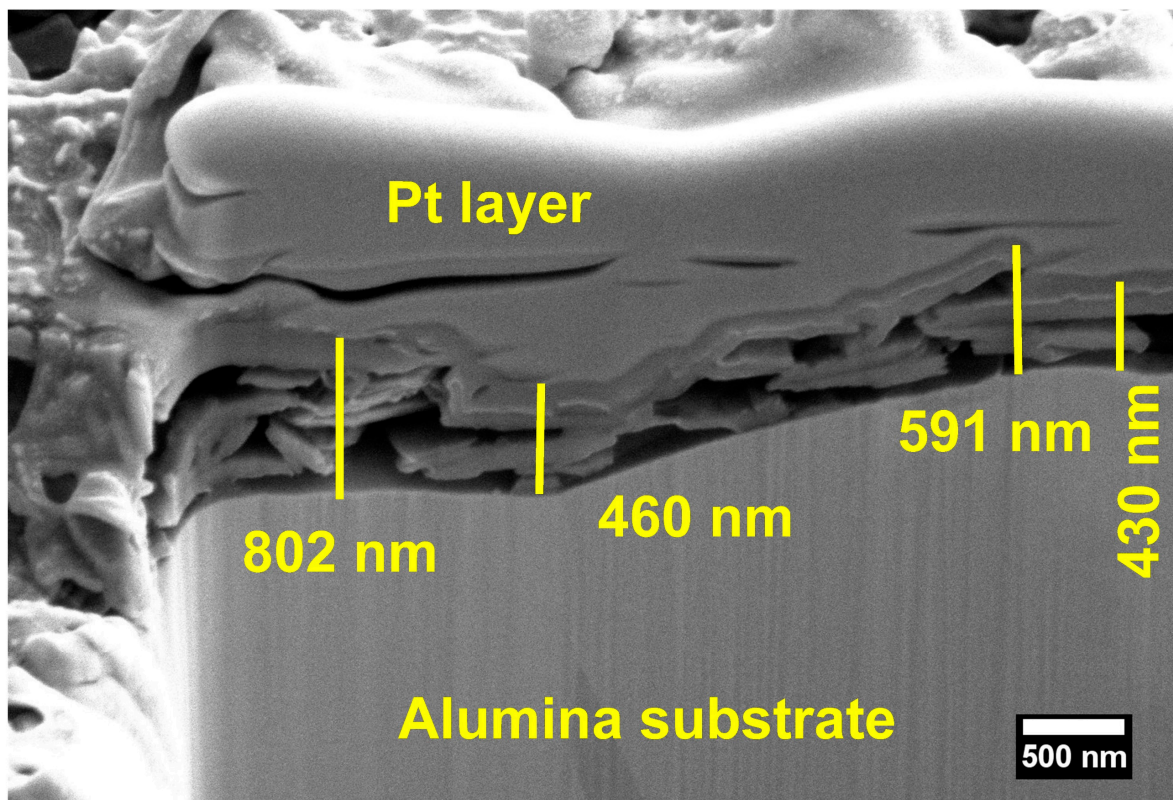
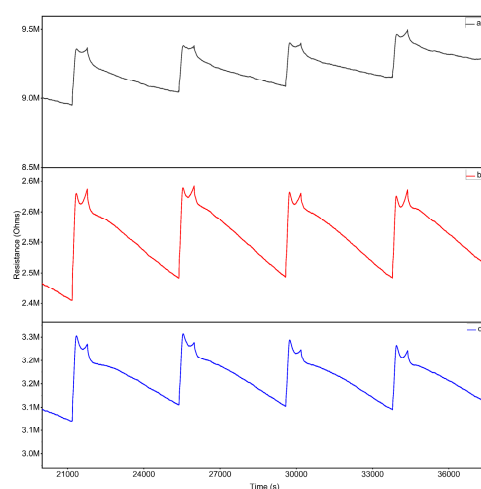


Supplementary Materials

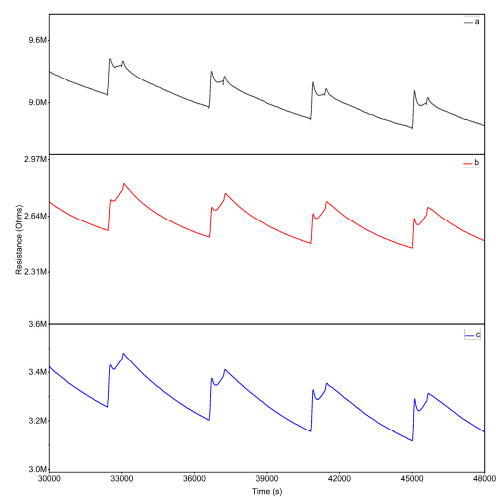
## Pd-Nanoparticle-Decorated Multilayered MoS<sub>2</sub> Sheets for Highly Sensitive Hydrogen Sensing



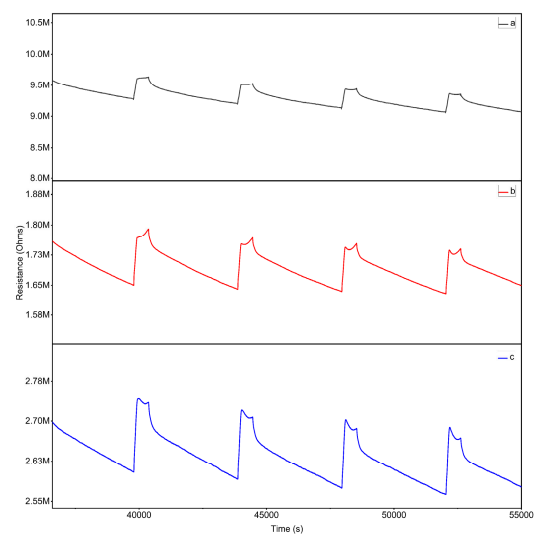
**Figure S1.** Thickness analysis of MoS<sub>2</sub> layer deposited by airbrushing.



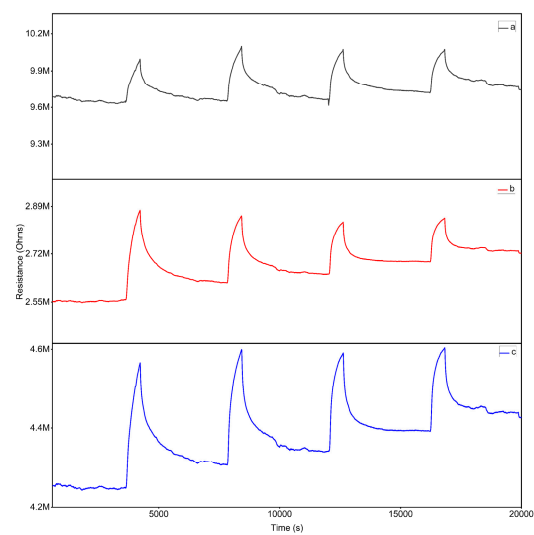
**Figure S2.** Sensor responses towards 5 ppm benzene at 150 °C, (a) MoS<sub>2</sub>, (b) MoS<sub>2</sub>-Pd<sub>1</sub> and (c) MoS<sub>2</sub>-Pd<sub>2</sub>.



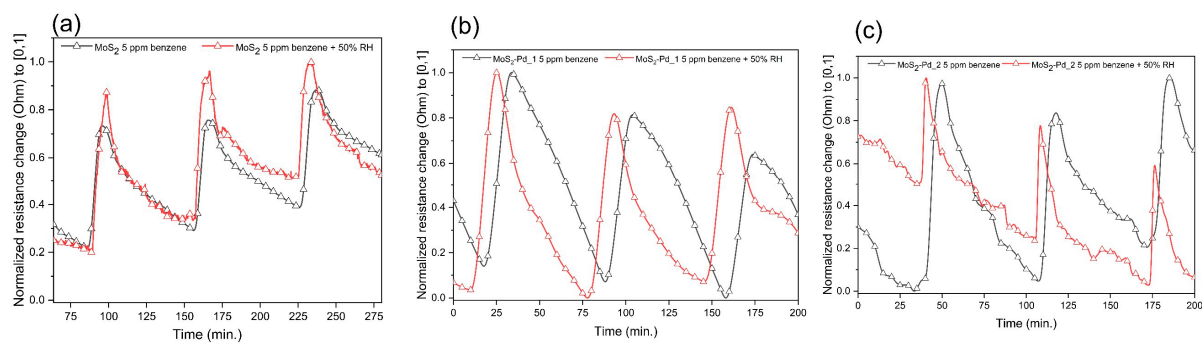
**Figure S3.** Sensor responses towards 80 ppm CO at 150 °C, (a) MoS<sub>2</sub>, (b) MoS<sub>2</sub>-Pd<sub>1</sub> and (c) MoS<sub>2</sub>-Pd<sub>2</sub>.



**Figure S4.** Sensor responses towards 10 ppm ethanol at 150 °C, (a) MoS<sub>2</sub>, (b) MoS<sub>2</sub>-Pd<sub>1</sub> and (c) MoS<sub>2</sub>-Pd<sub>2</sub>.



**Figure S5.** Sensor responses towards 5 ppm  $\text{NH}_3$  at 150 °C, (a)  $\text{MoS}_2$ , (b)  $\text{MoS}_2\text{-Pd}_1$  and (c)  $\text{MoS}_2\text{-Pd}_2$ .



**Figure S6.** Normalized sensor resistance change as a function of time in dry (black) and 50% relative humidity (red) atmosphere at 150 °C towards 5 ppm benzene, (a)  $\text{MoS}_2$ , (b)  $\text{MoS}_2\text{-Pd}_1$  and (c)  $\text{MoS}_2\text{-Pd}_2$ .