Supporting Information

Supporting Information for

High-Performance H_2S Gas Sensor Based on MXene/MoS_2 Heterostructure Fabricated by Langmuir-Blodgett and Chemical Vapor Deposition

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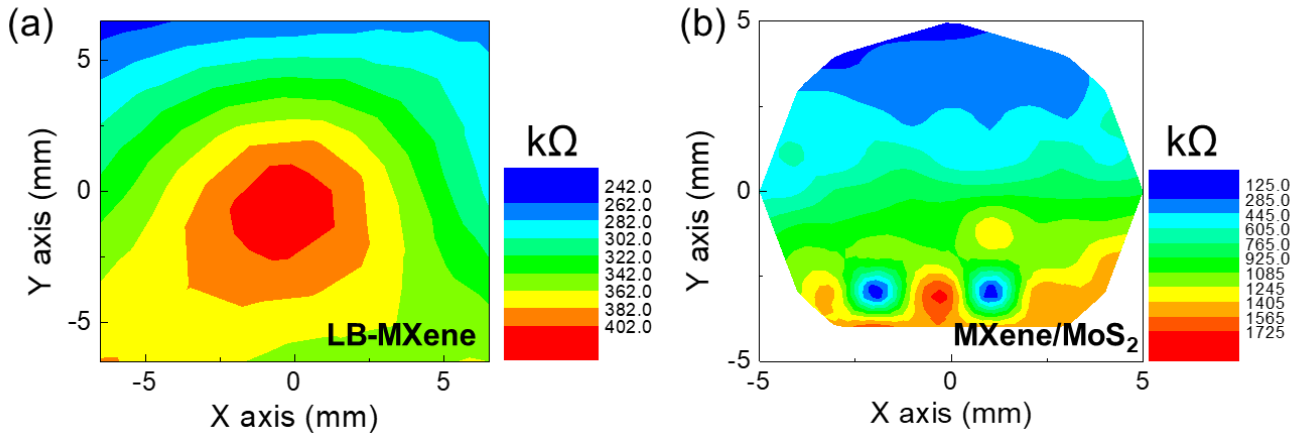

Figure S1. Sheets resistance of (a) LB-MXene film and (b) MXene/MoS_2 on SiO_2/Si.

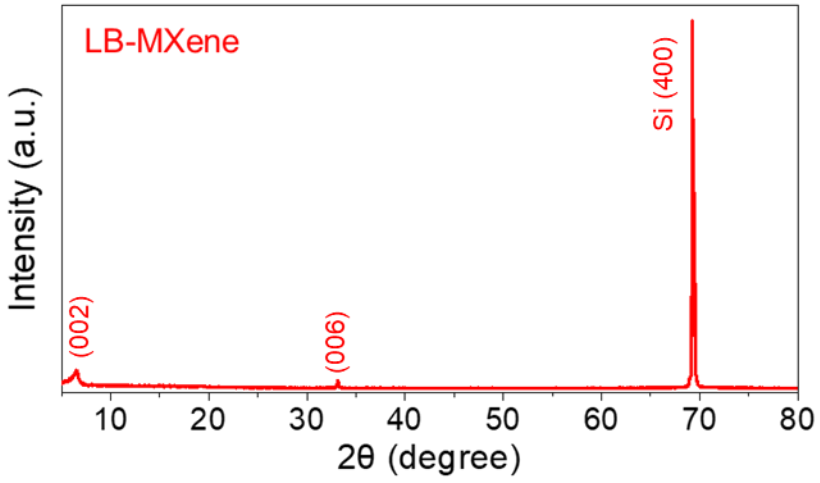

Figure S2. XRD patterns of LB-MXene.

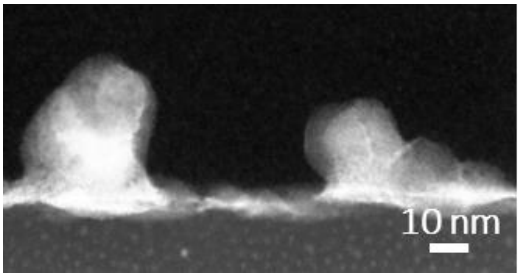

Figure S3. STEM image of MXene/MoS_2

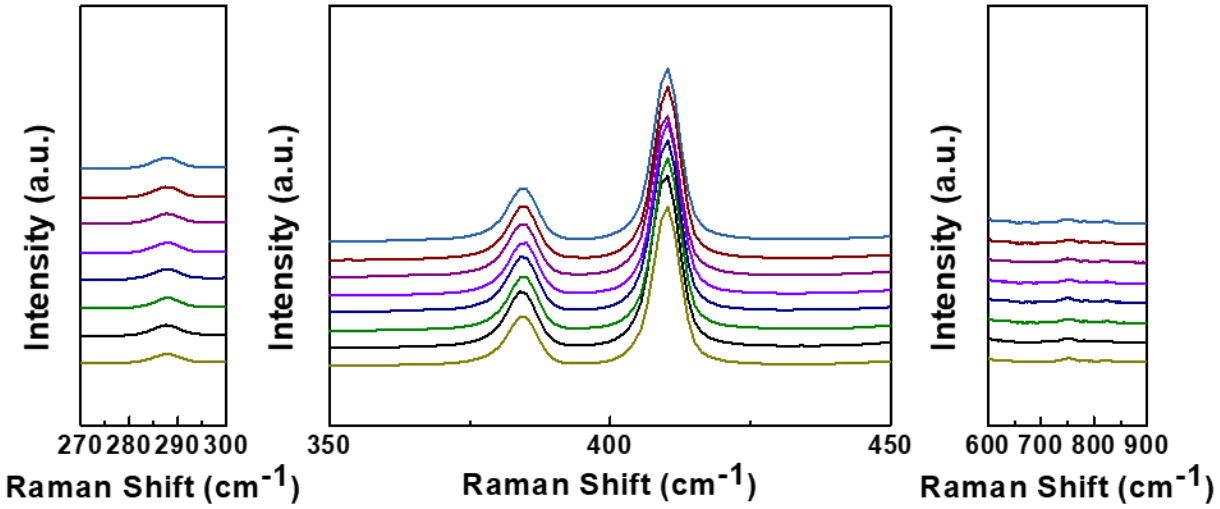

Figure S4. Raman spectra of 8 random sites on MXene/MoS_2.

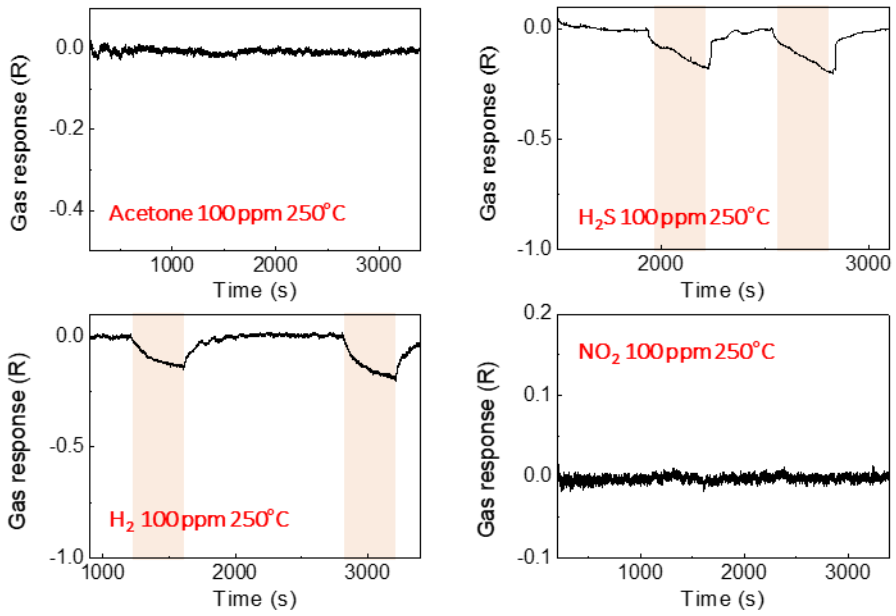

Figure S5. Gas sensing performances of pristine MoS_2 for various gas (Acetone, H_2S, H_2, NO_2).

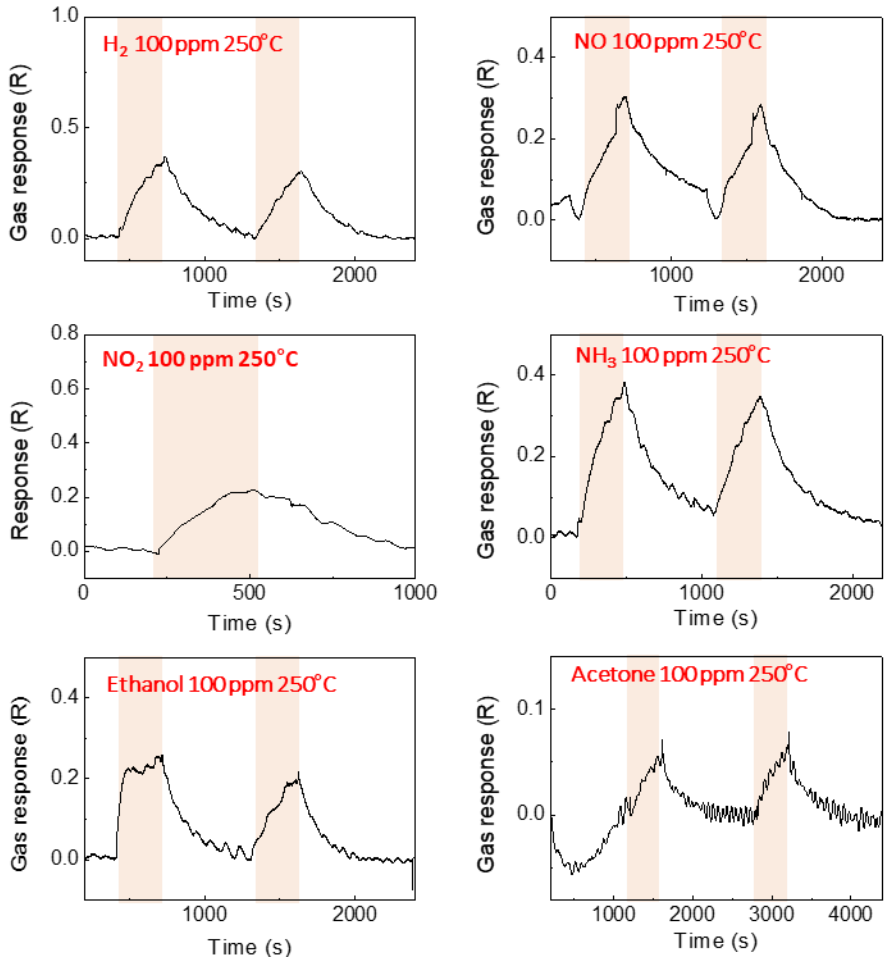

Figure S6. Gas sensing performances of MXene/MoS_2 for various gas(H_2, NO_2, EtOH, NO, NH_3, Acetone).

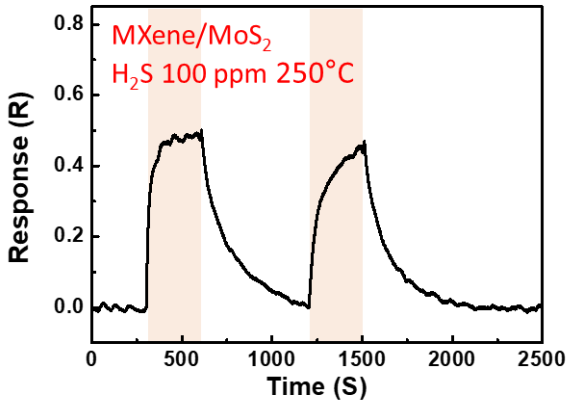

Figure S7. Reproducibility of MXene/MoS_2 gas sensor.

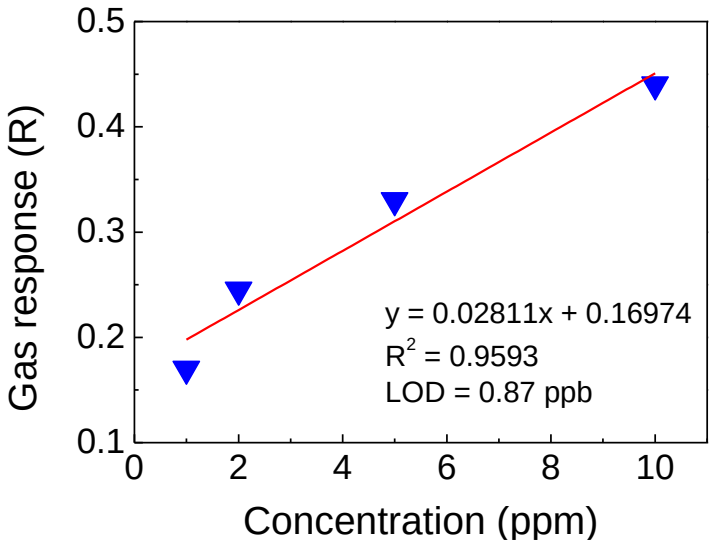

Figure S8. Calculation of limit of detection (LOD) based on H_2S gas response at different concentrations for MXene/MoS_2.

Here, LOD for the gas performance was calculated using the following formula: $\mathrm{LOD(ppb)} = 3.3\frac{RMS}{Slope}$.