

Electronic Supplementary Material

The Prior Rules of Designing $Ti_3C_2T_x$ MXene-Based Gas

Sensor

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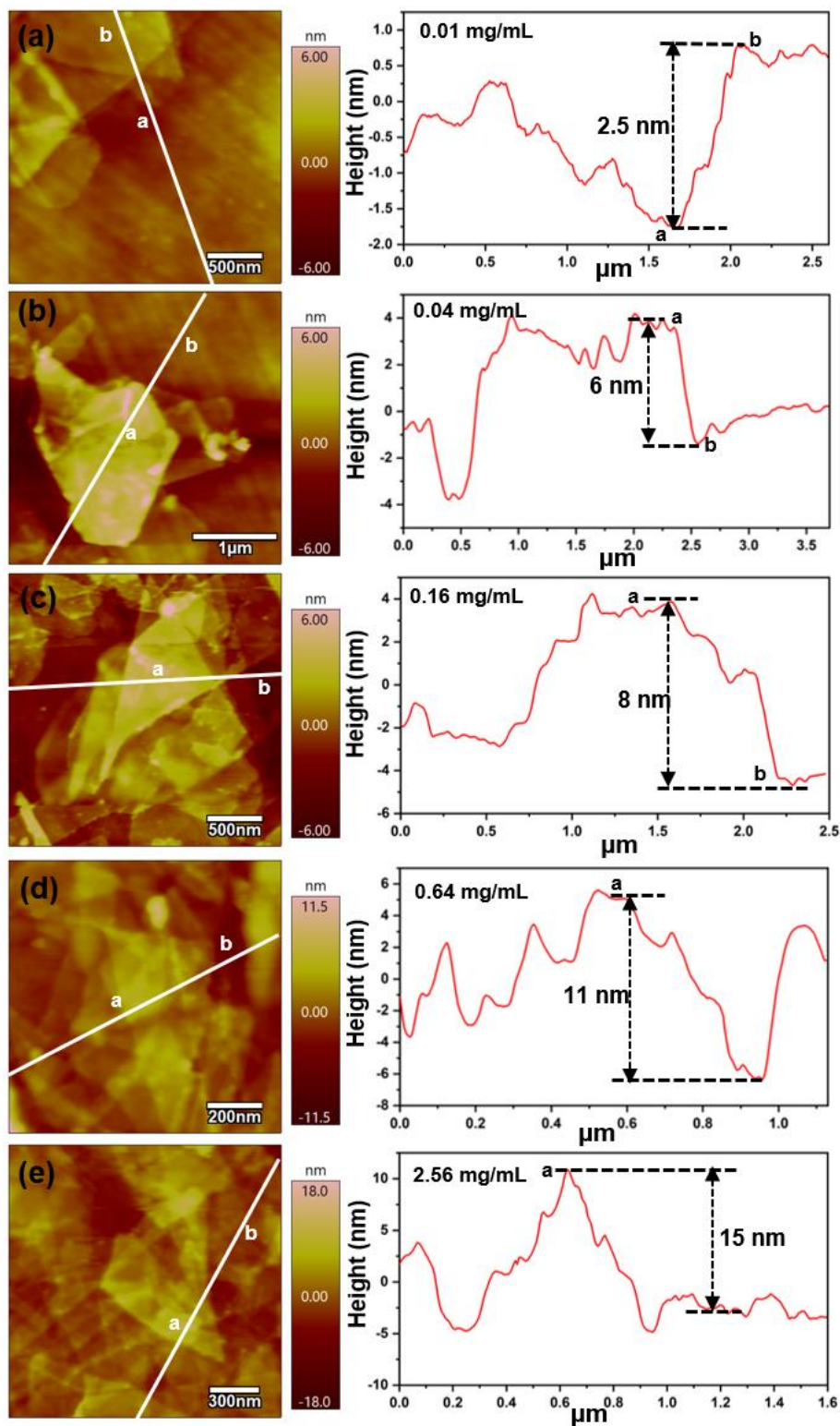


Fig. S1. AFM analysis of $\text{Ti}_3\text{C}_2\text{T}_x$ MXene with different concentration. (a) Height profile of white dashed line, indicating the thickness is 2.5 nm with the concentration of 0.01 mg/mL. (b) Height profile of white dashed line, indicating the thickness is 6 nm with the concentration of 0.04 mg/mL. (c) Height profile of white dashed line, indicating the thickness is 8 nm with the concentration of 0.16 mg/mL. (d) Height profile of white dashed line, indicating the thickness is 11 nm with the concentration of 0.64 mg/mL. (e) Height profile of white dashed line, indicating the thickness is 15 nm with the concentration of 2.56 mg/mL.

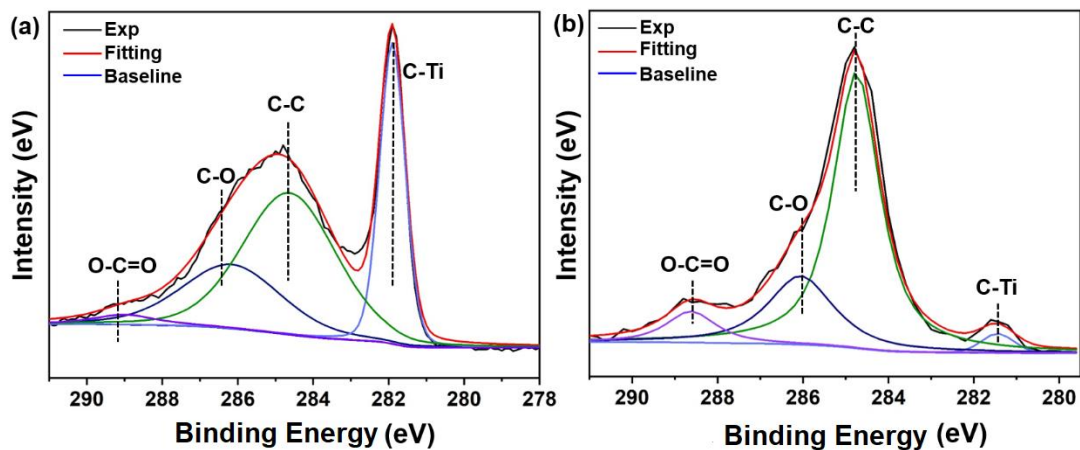


Fig. S2. C 1s XPS spectrum of (a) Ti₃C₂T_x MXene and (b) oxidized Ti₃C₂T_x MXene.

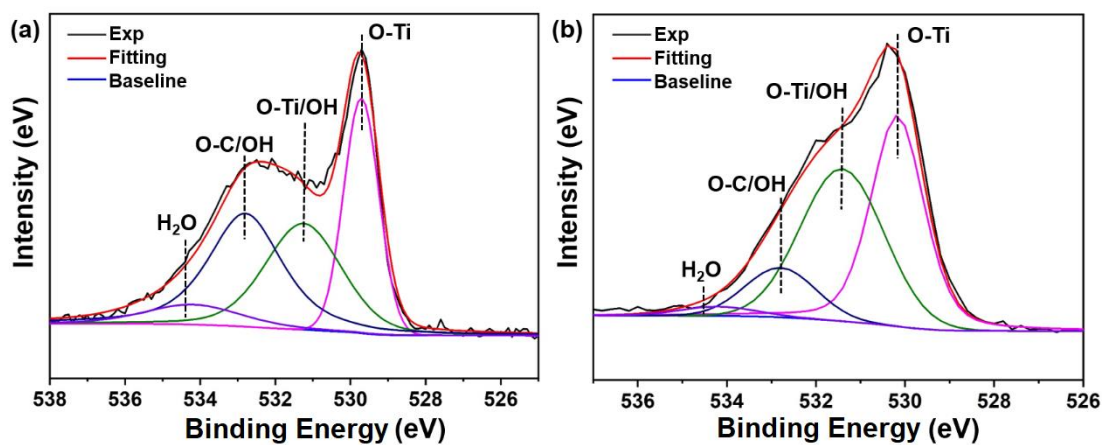


Fig. S3. O 1s XPS spectrum of (a) Ti₃C₂T_x MXene and (b) oxidized Ti₃C₂T_x MXene.

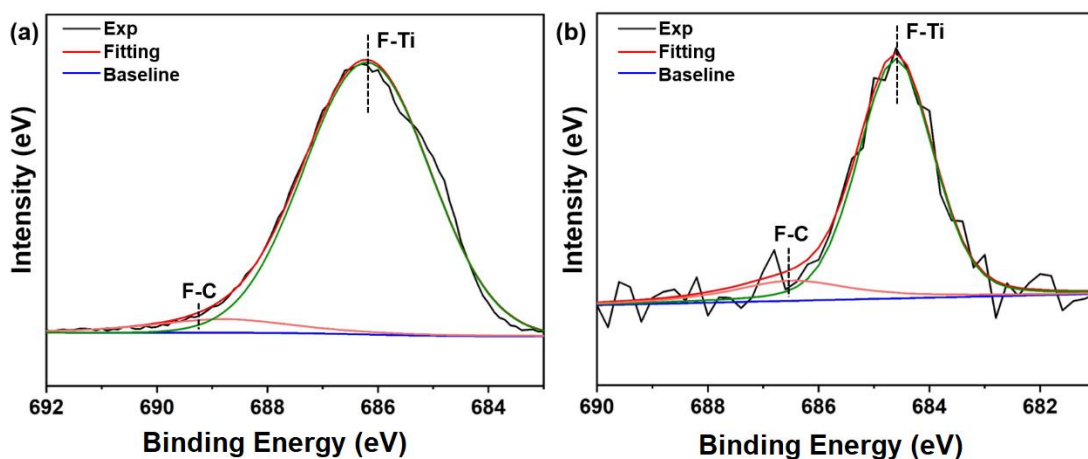


Fig. S4. F 1s XPS spectrum of (a) Ti₃C₂T_x MXene and (b) oxidized Ti₃C₂T_x MXene.

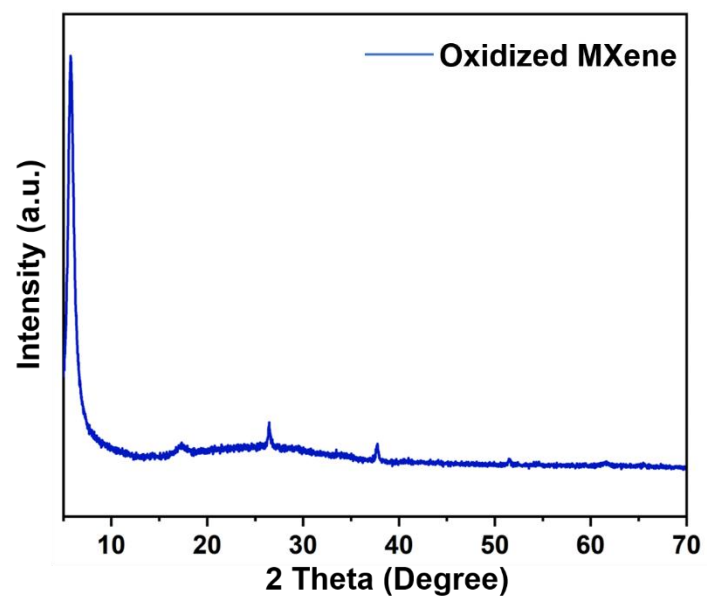


Fig. S5. XRD patterns of oxidized $\text{Ti}_3\text{C}_2\text{T}_x$ MXene.