Electronic Supplementary Information for

SnS$_2$/MXene derived TiO$_2$ hybrid for ultra-fast room temperature NO$_2$ gas sensing

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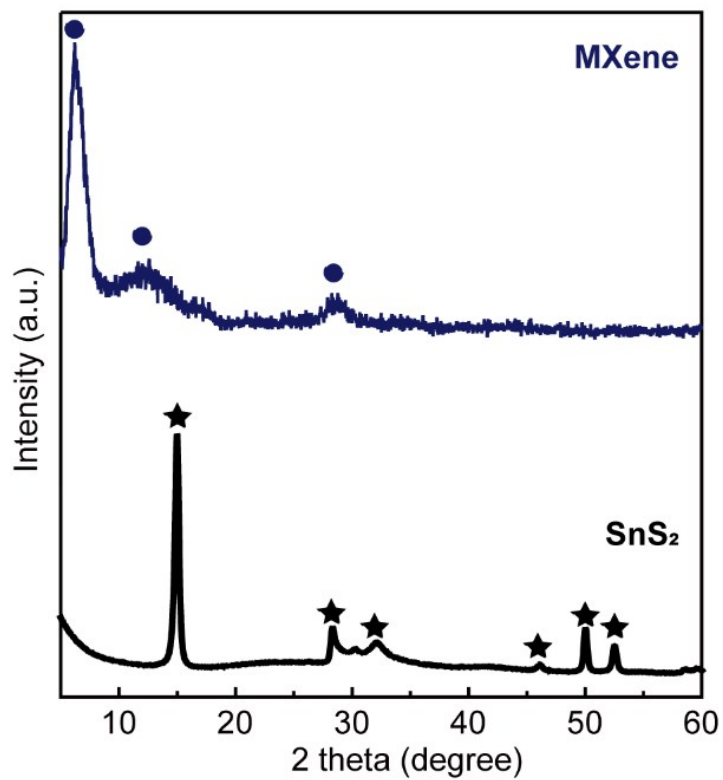* Corresponding author, e-mail address: derekho@cityu.edu.hk

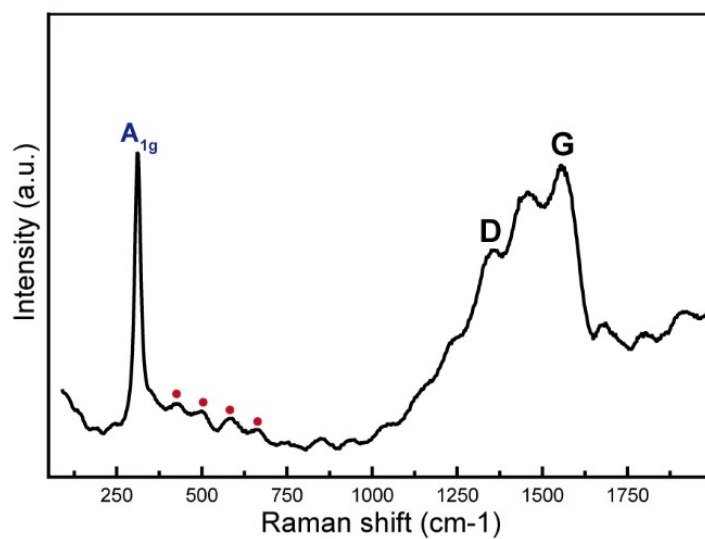**Fig. S1.** XRD spectra of the as-prepared SnS_2 and as-prepared MXene.

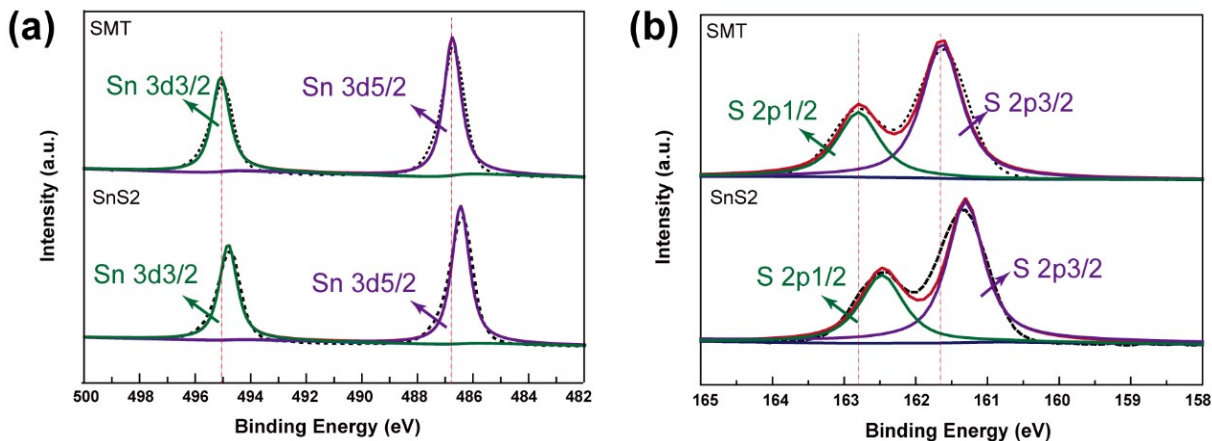**Fig. S2.** Raman spectrum of the SMT hybrid.

Fig. S3. XPS spectra of SMT and SnS$_2$: (a) Sn^{4+} and (b) S^{2-}.
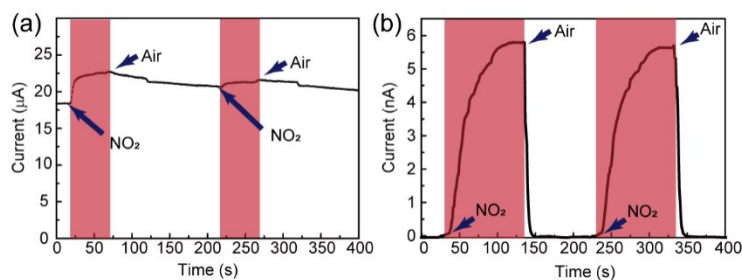

Fig. S4. Room temperature 1000 ppm NO$_2$ sensing response of (a) ST hybrid (i.e. does not contain MXene), and (b) SMT-2 hybrid. Results show that MXene significantly enhances gas sensing performance.