**First-principles perspectives on detection properties of sulfur mustard gas using novel electroresistive ε-Arsenene nanosheet device**

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**Supplementary information**

**Fig. S1** Phonon-band-spectrum of pristine ε-As nanosheet.

**Fig. S2** Adsorption of H2O, CO and CO2 molecules on ε-As nanosheet.

**Fig. S3** Bands and PDOS maps - ε-As nanosheet\_H2O.

**Fig. S4** Bands and PDOS maps - ε-As nanosheet\_CO.

**Fig. S5** Bands and PDOS maps - ε-As nanosheet\_CO2. 