

## Tuning MoSO monolayer properties for optoelectronic and spintronic applications: Effect of external strain, vacancy, and doping

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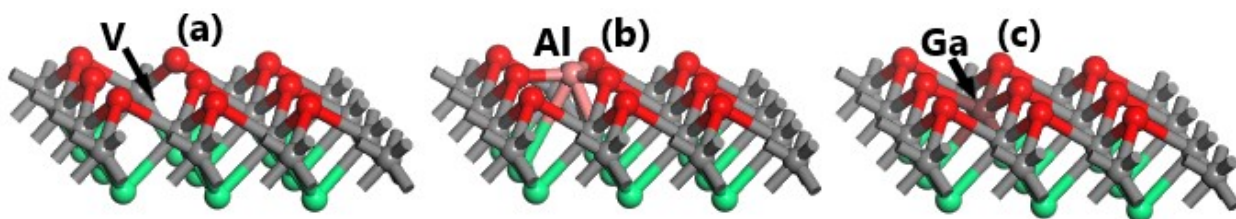


Figure S1: Optimized atomic structure of (a) Mo<sub>V</sub>, (b) Mo<sub>Al</sub>, and (c) Mo<sub>Ga</sub> system.

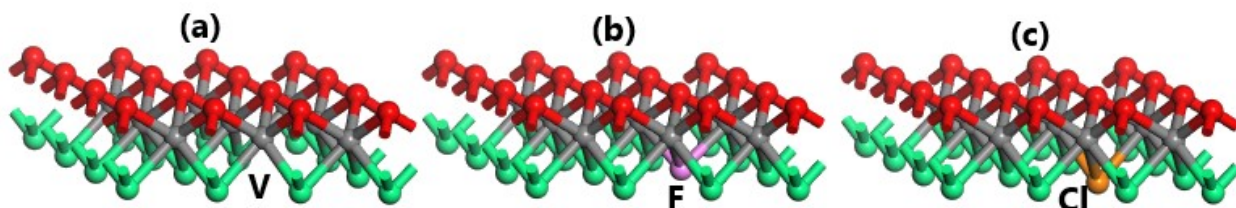


Figure S2: Optimized atomic structure of (a) S<sub>V</sub>, (b) S<sub>F</sub>, and (c) S<sub>Cl</sub> system.

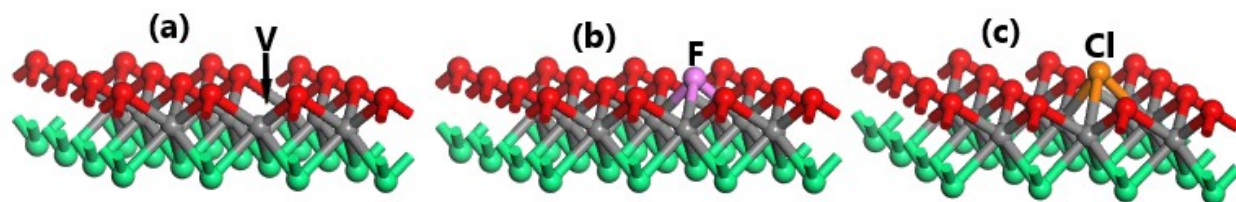


Figure S3: Optimized atomic structure of (a) O<sub>V</sub>, (b) O<sub>F</sub>, and (c) O<sub>Cl</sub> system.

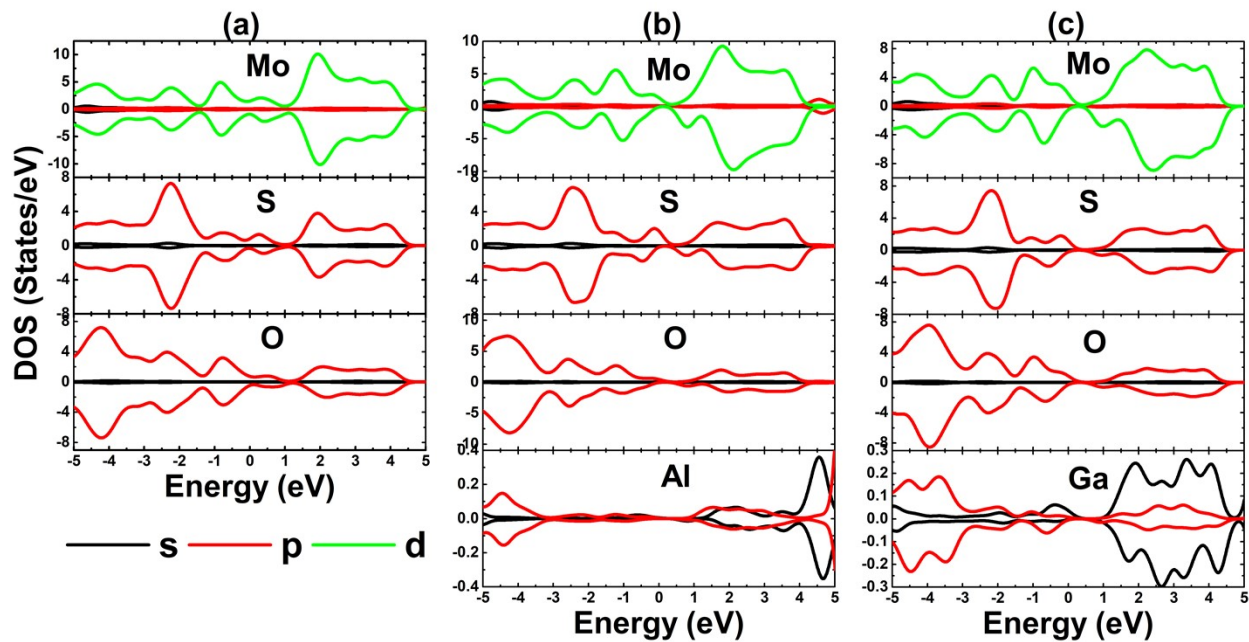


Figure S4: Partial density of states of (a)  $\text{Mo}_V$ , (b)  $\text{Mo}_{Al}$ , and (d)  $\text{Mo}_{Ga}$  system.

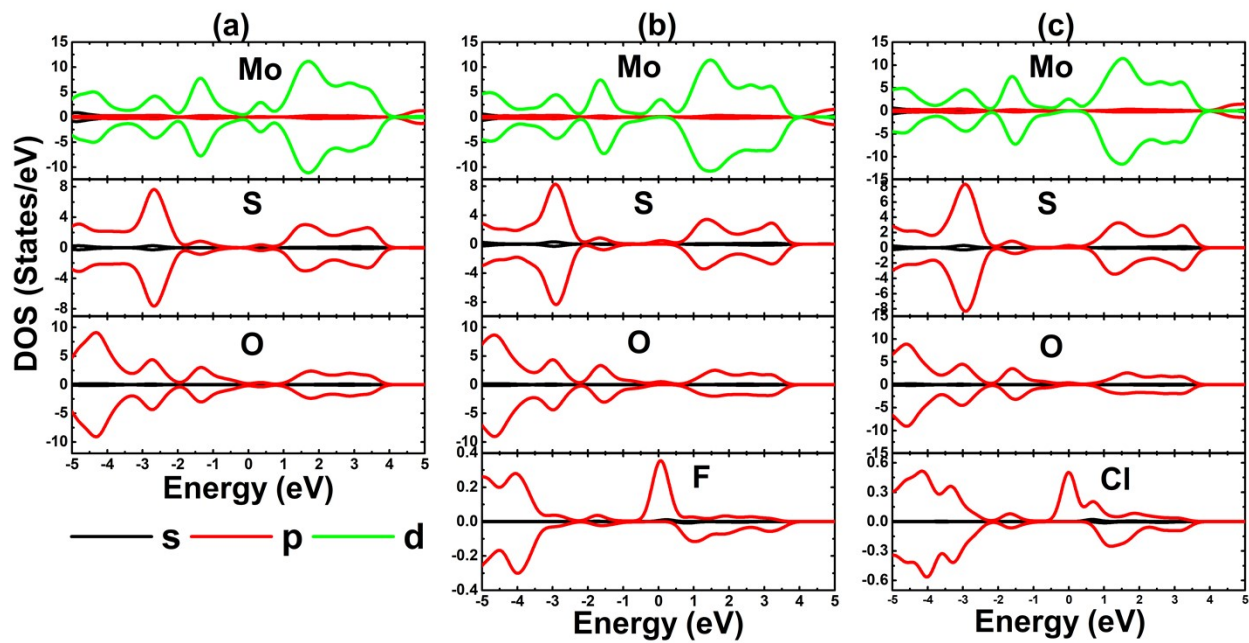


Figure S5: Partial density of states of (a)  $\text{S}_V$ , (b)  $\text{S}_F$ , and (d)  $\text{S}_{Cl}$  system.

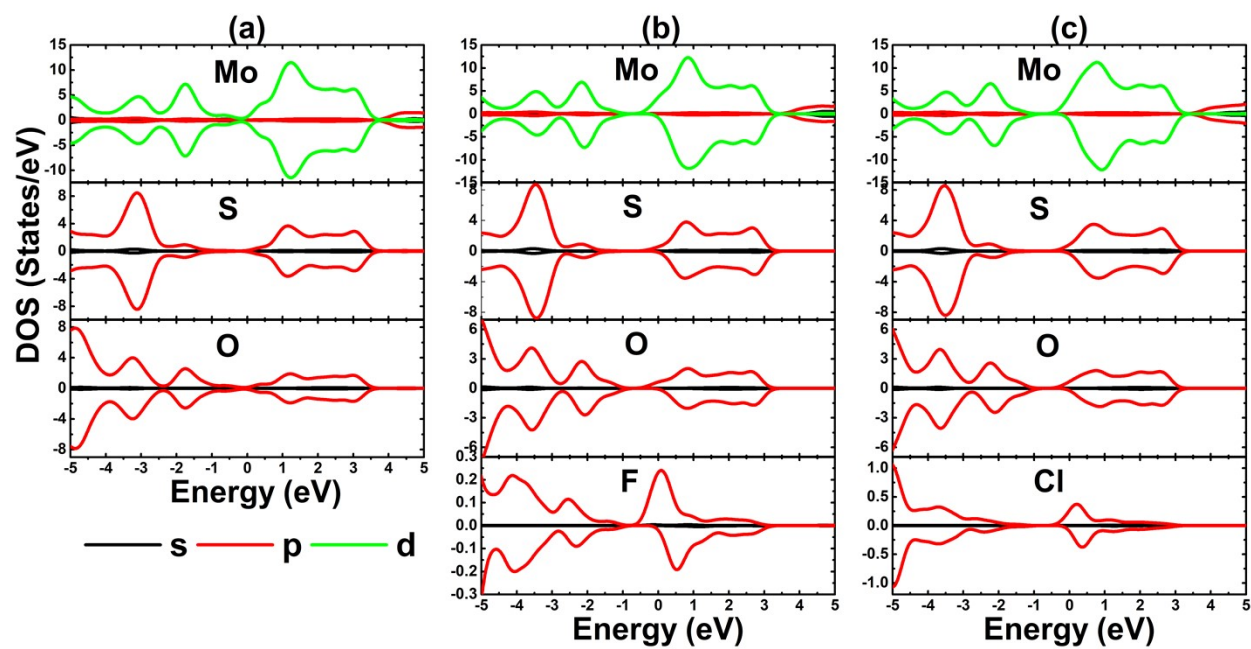


Figure S6: Partial density of states of (a)  $O_V$ , (b)  $O_F$ , and (c)  $O_{Cl}$  system.