

Supplementary Information

Strain-Induced Magnetic Transition and Exchange Competition in a Metallic

Cr₂SbS Monolayer with High Néel Temperature

Index	Page
1. Electron localization function and spin-polarized charge density	2
2. Six magnetic configurations of the Cr ₂ SbS monolayer	2
3. Electronic band structure with SOC included and PDOS of the Cr ₂ SbS monolayer	3
4. MAE and T _N of the Cr ₂ SbS monolayer under biaxial strain	3
5. Band structures of the Cr ₂ SbS monolayer under -4%~4% biaxial strain	4
6. PDOS of the Cr ₂ SbS monolayer under -4%~4% biaxial strain	4
7. M _Z and C _V of the Cr ₂ SbS monolayer under biaxial strain	5

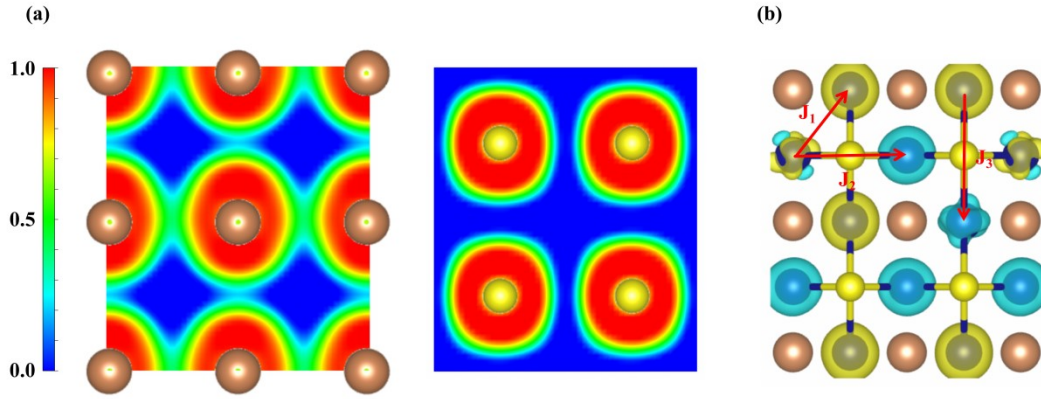


FIG. S1. (a) Electron localization function of the Cr₂SbS monolayer. (b) Calculated spin-polarized charge density.

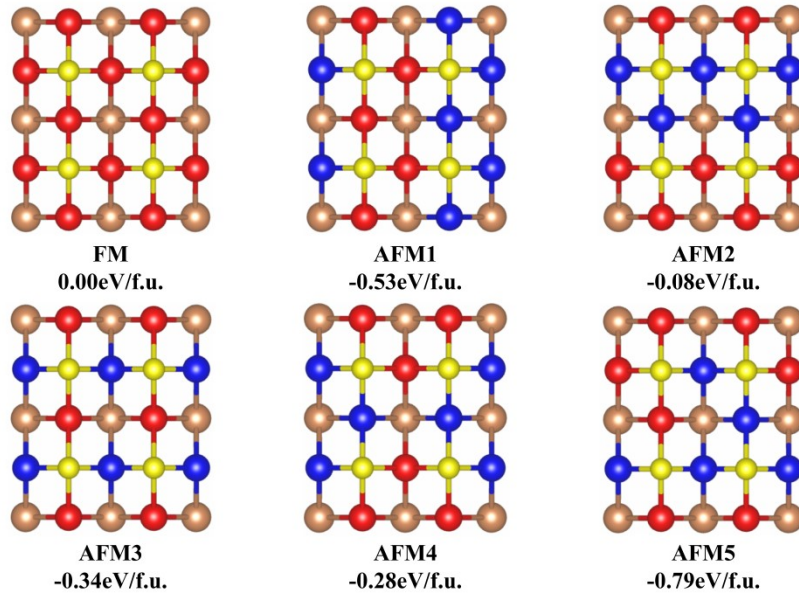


FIG. S2. Six magnetic configurations of the Cr₂SbS monolayer, in which red and blue spheres represent spin-up and spin-down Cr atoms, respectively.

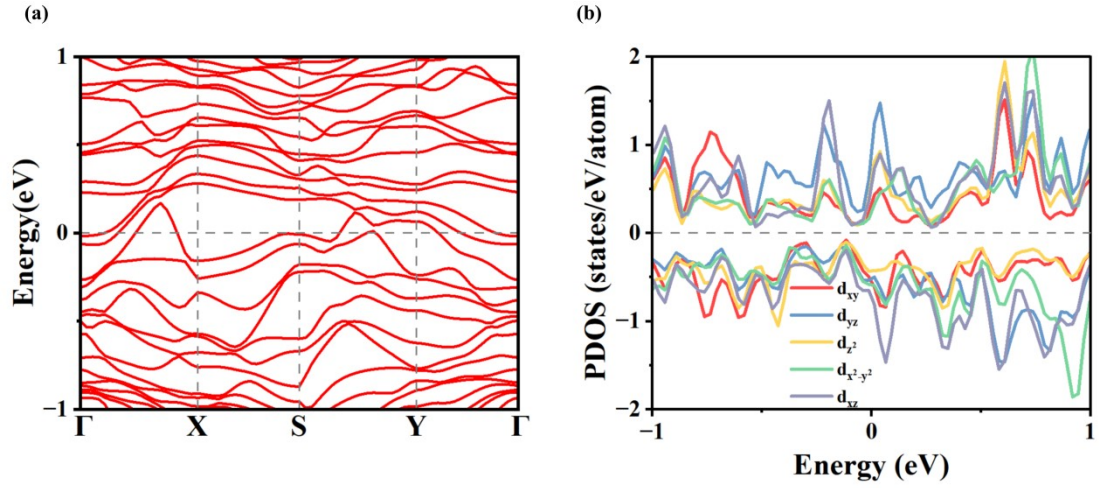


FIG. S3. (a) Electronic band structure with SOC included. (b) Projected density of states decomposed into the five Cr-3d orbitals.

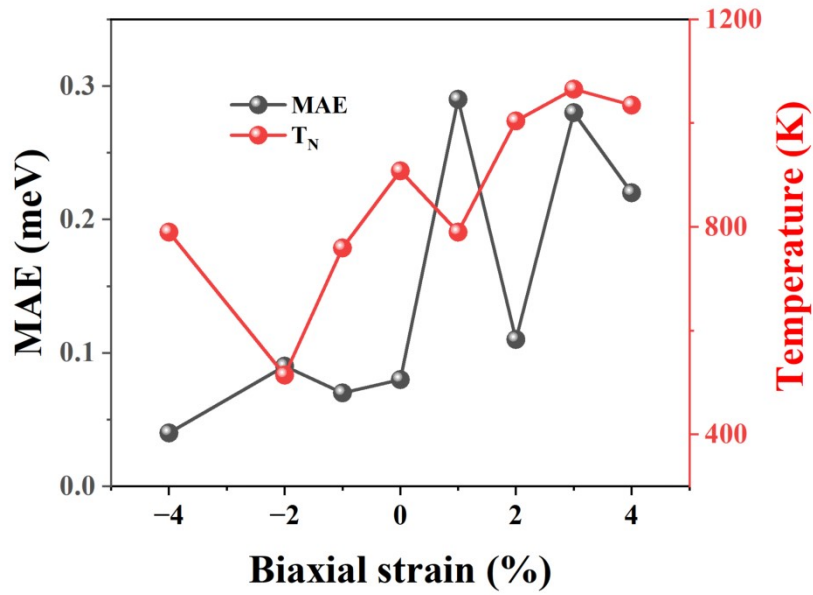


FIG. S4. MAE and T_N of the Cr_2SbS monolayer under biaxial strain.

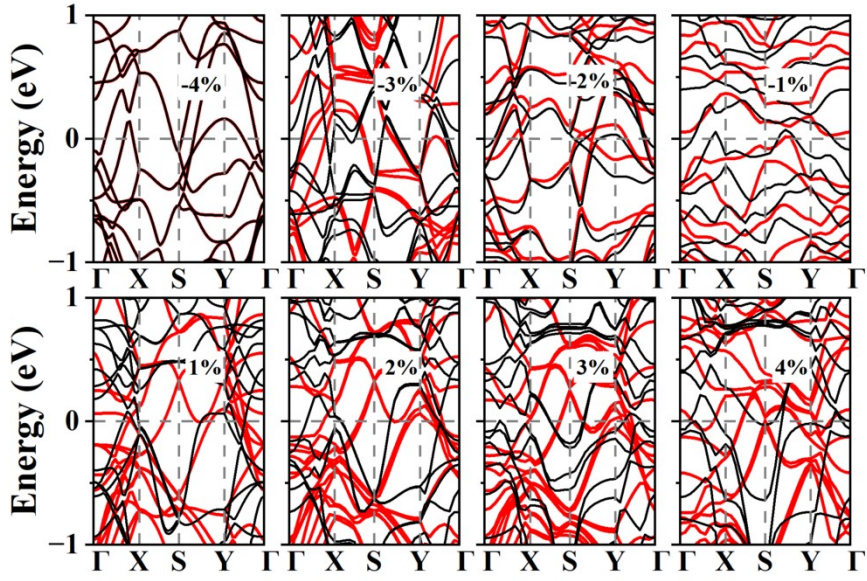


FIG. S5. Band structures of the Cr_2SbS monolayer under $-4\%\sim 4\%$ biaxial strain.

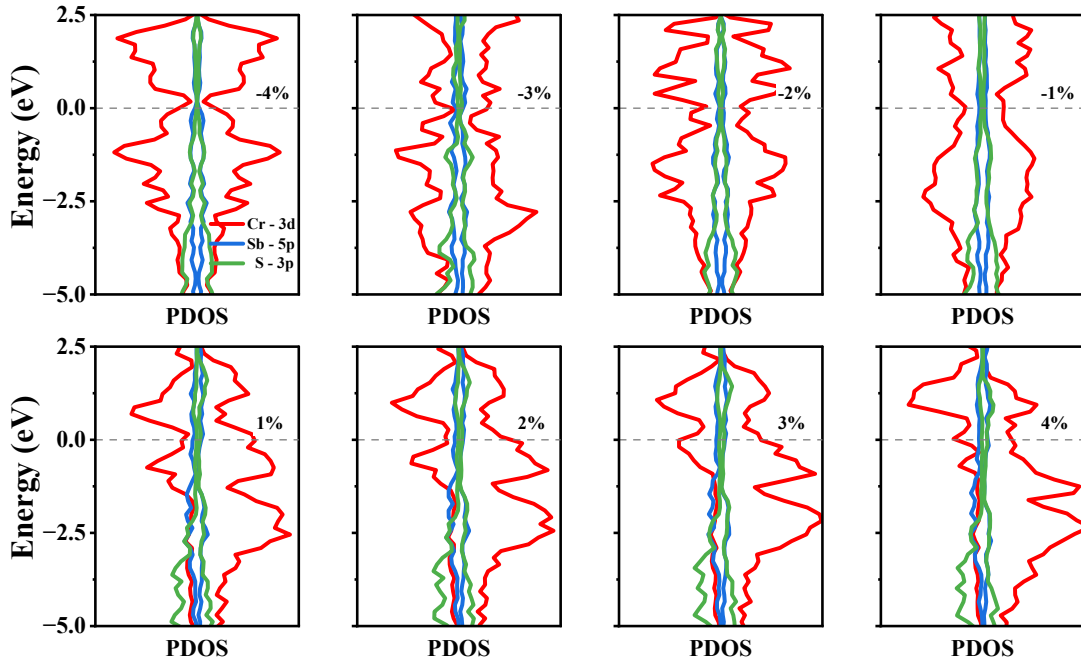


FIG. S6. PDOS of the Cr_2SbS monolayer under $-4\%\sim 4\%$ biaxial strain.

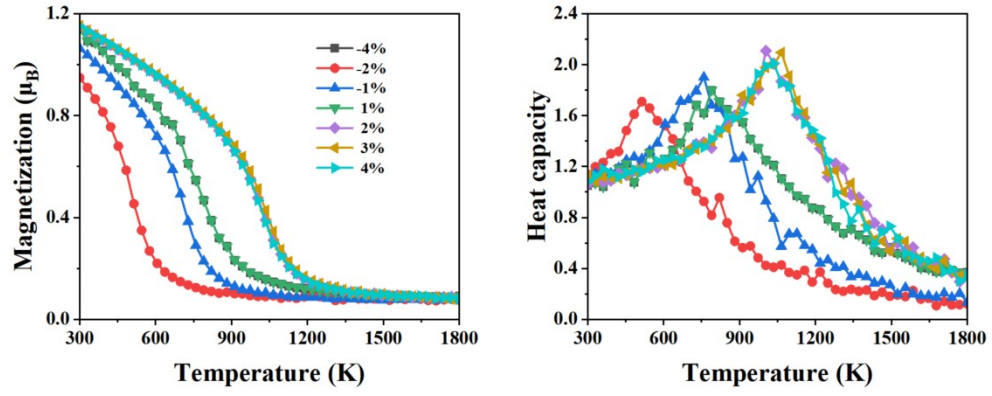


FIG. S7. Temperature-dependent variation of the M_Z and C_V of the Cr_2SbS monolayer under biaxial strain.