Electronic Supplementary Information (ESI)

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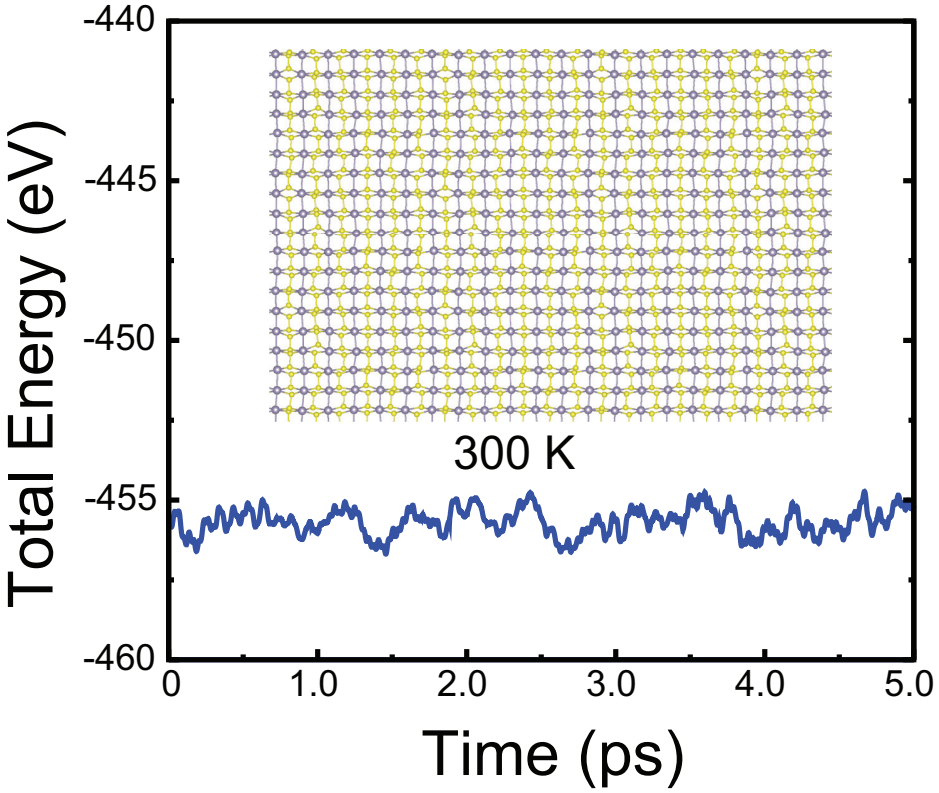

Figure 1: Energy (eV) as a function of time (ps) at room temperature (300 K). The atomic configuration (top-view) of 3×3×1 supercell of $Cmme$-SnS at the end of the 5 ps AIMD simulations (inset) at 300 K, respectively.

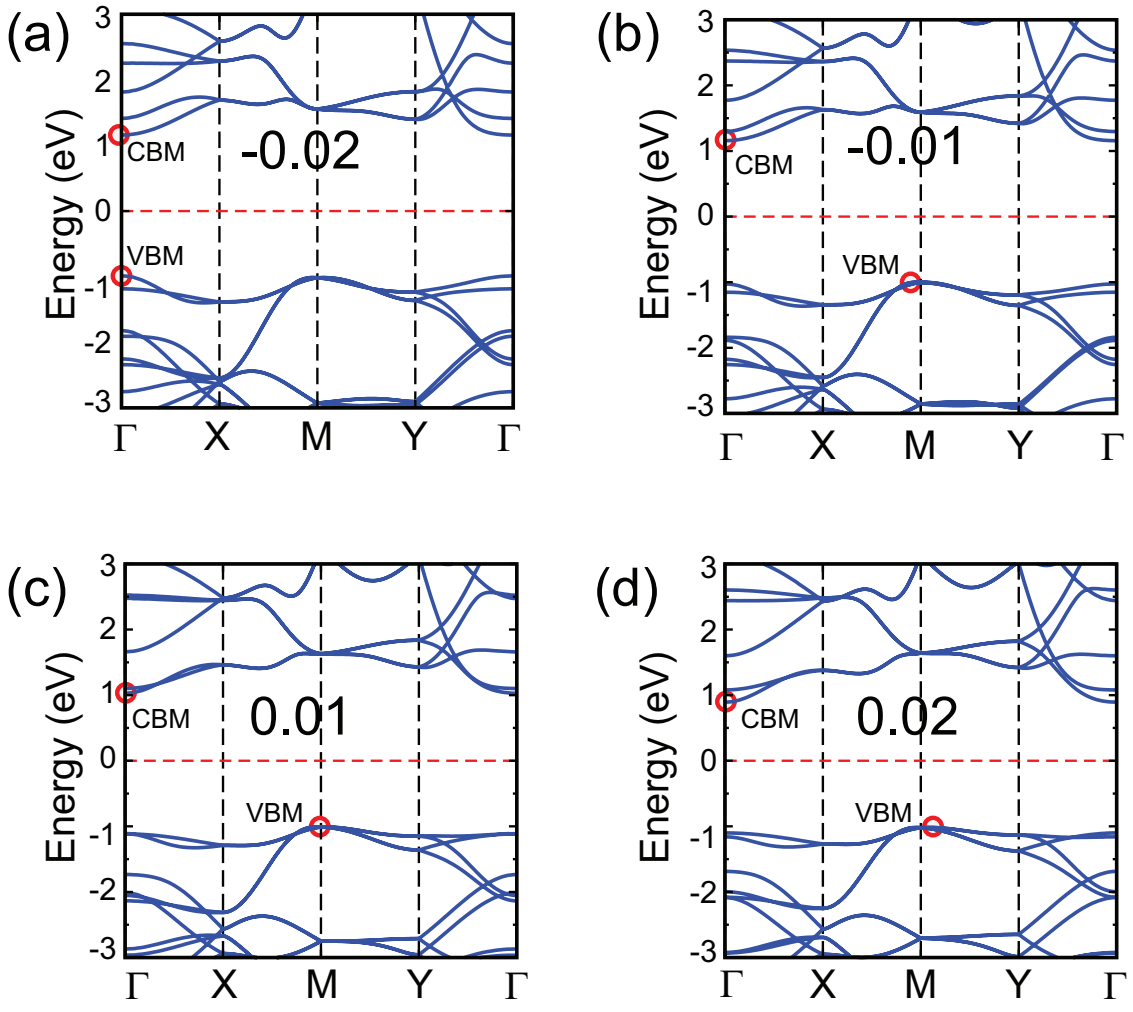

Figure 2: (a-d) Electronic band structure of $Cmme$-SnS as a function of equi-biaxial compressive (-0.02 and, -0.01) and tensile (0.01, and 0.02) strain calculated using HSE06 functional. Red circles correspond CBM and VBM, respectively.

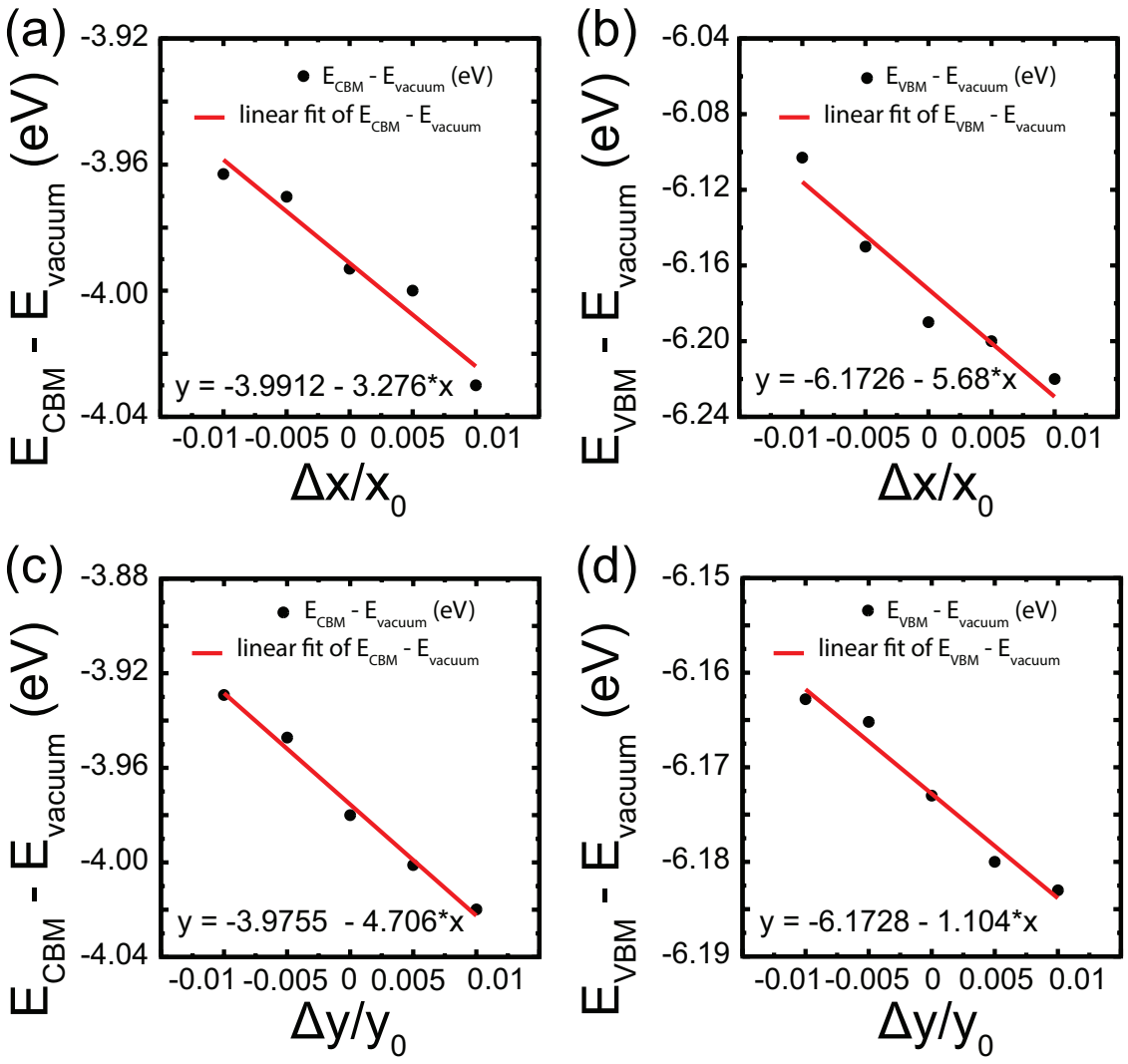

Figure 3: (a-d) The change in band edge energies (E_{CBM} and E_{VBM}) with the lattice dilation (compression and expansion) along x- and y-directions calculated using HSE06. All the band energies (eV) are referenced with respect to the vacuum. Red solid lines are fitting curves, whereas the slope represents deformation potential constants (E_{1x} and E_{1y}).

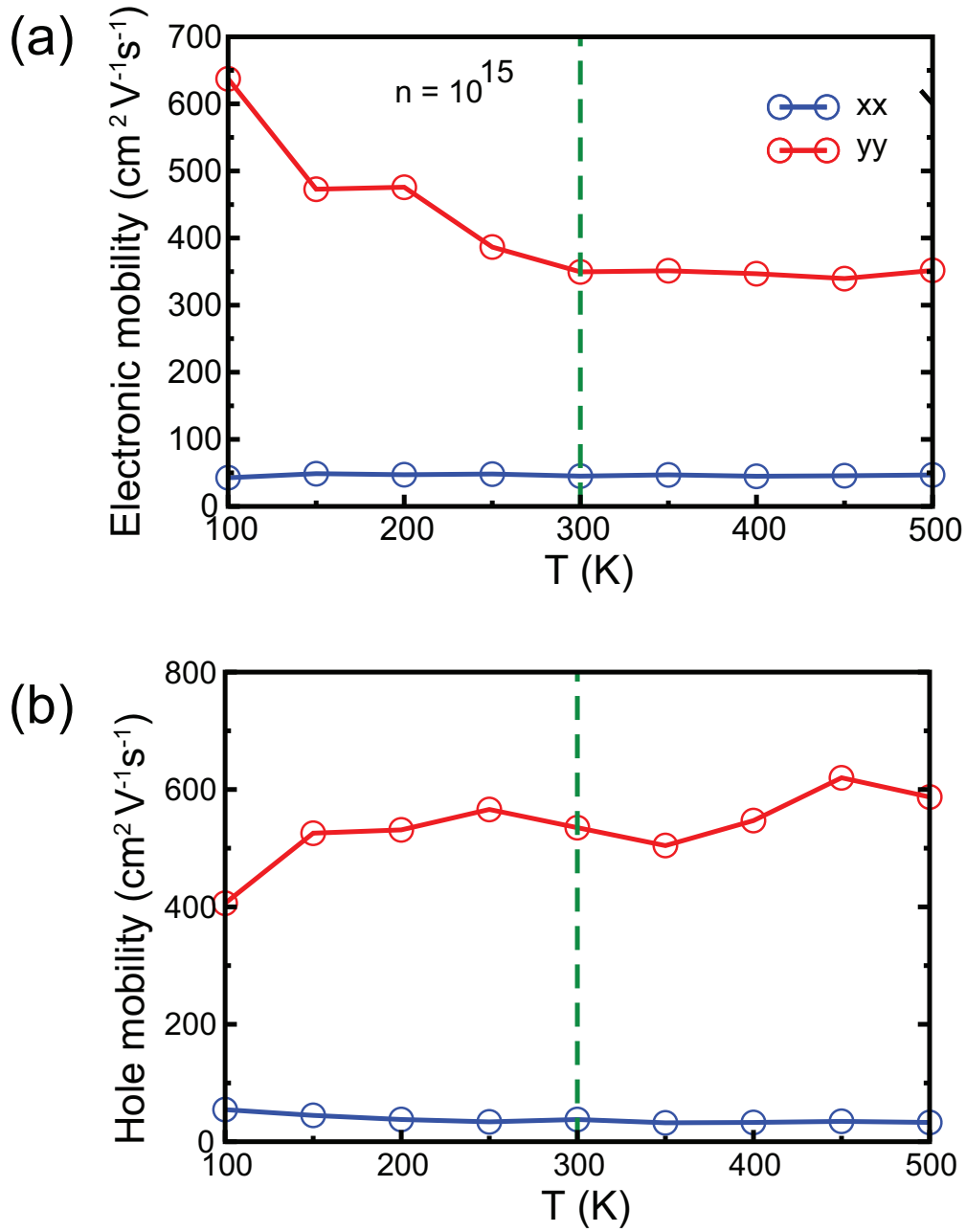

Figure 4: (a-b) The electron and hole mobility as a function of temperature (T) at the carrier concentration (n) in cm^{-2} (inset). Here, scattering time (τ) is assumed 10 fs.