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Supplementary Information

The electronic and optical properties of novel germanene and antimonene heterostructure

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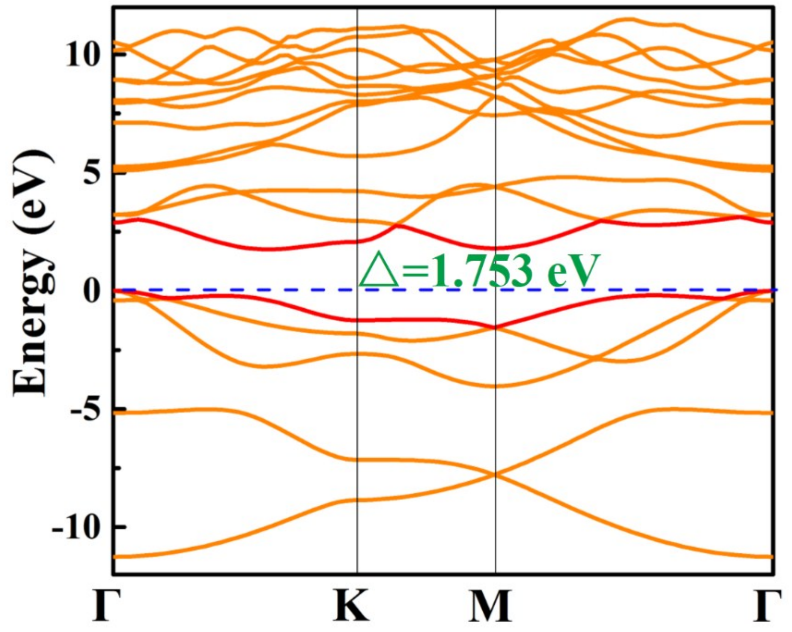

Figure S1. Electronic band structures of Sb monolayer (antimonene) calculated at the GGA/PBE level. Fermi level is set at 0 eV and represented by bule dashed line. The top of valence band (VBM) and bottom of conduction band (CBM) are highlighted with red lines.

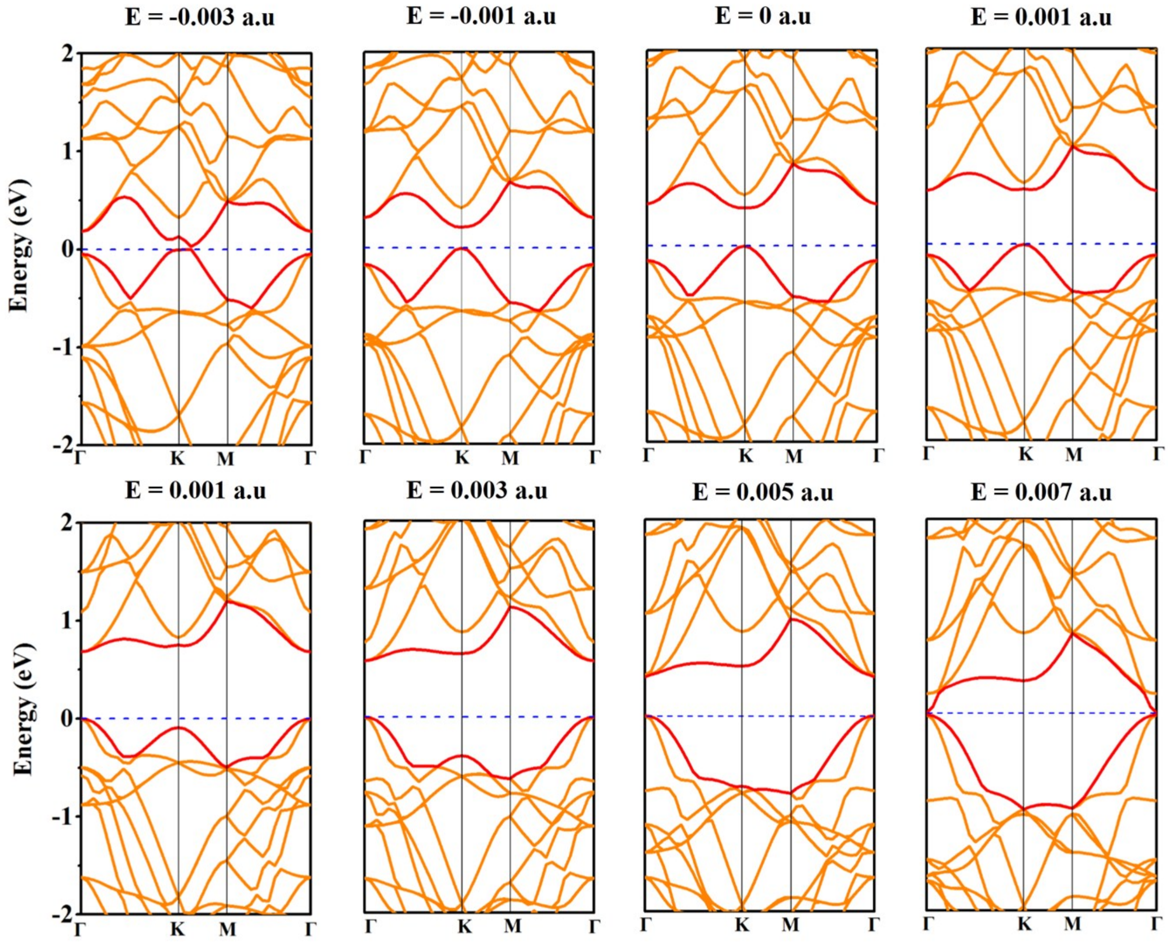

Figure S2. Electronic band structures of the germanene/antimonene bilayer in AAII pattern under different electric fields. The horizontal dash lines indicate the Fermi level.