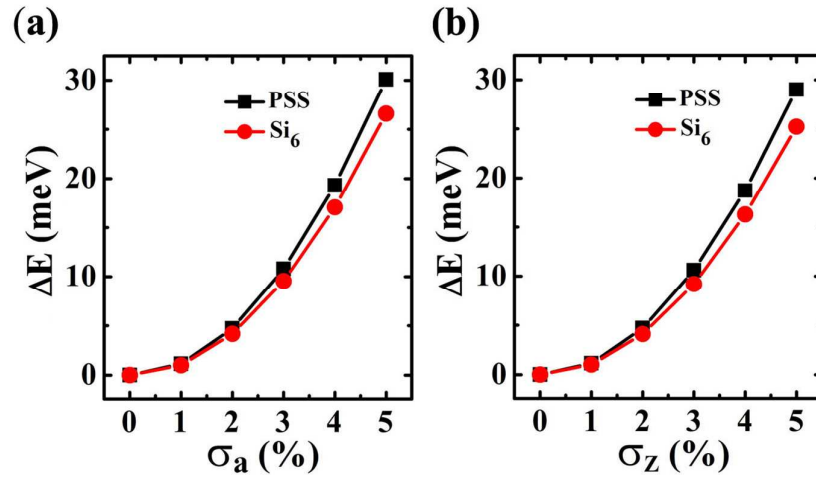# Supporting Information

Figure S1. The evolutions of deformation potential versus the applied strain for both (3,3) PSS and Si_6-antidot patterned (3,3) superlattice. The (a) and (b) are for the strains σ_a and σ_z, respectively.
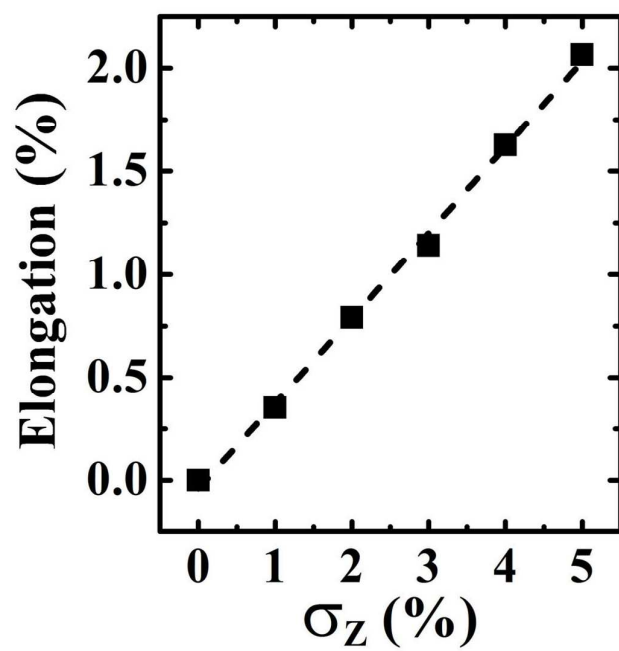
Figure S2. The elongation of Si-Si bonds along zigzag edge as referred to the ones without strain versus the applied strain σ_z.
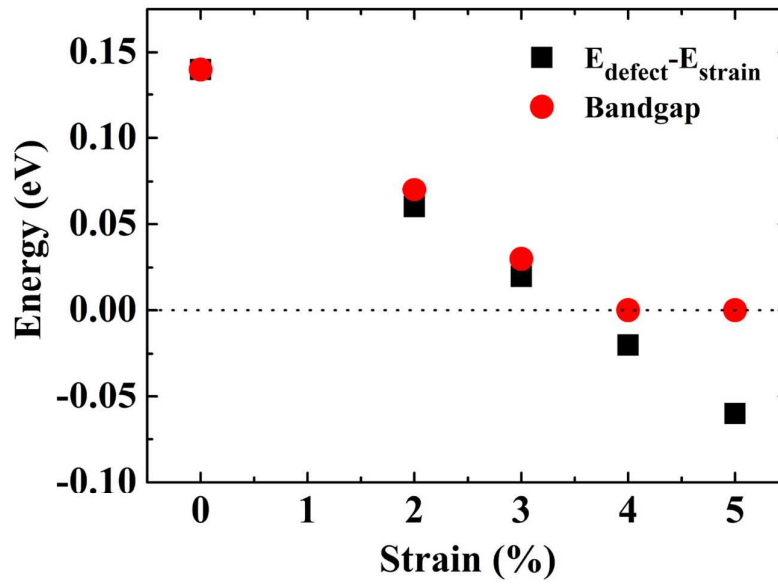
Figure S3. The evolutions of bandgap and E_{defect}–E_{strain} versus the applied uniaxial strain for the Si_6-antidot patterned (6,6) superlattice. Note that the bandgap would be closed once the E_{defect} gets smaller than E_{strain}.
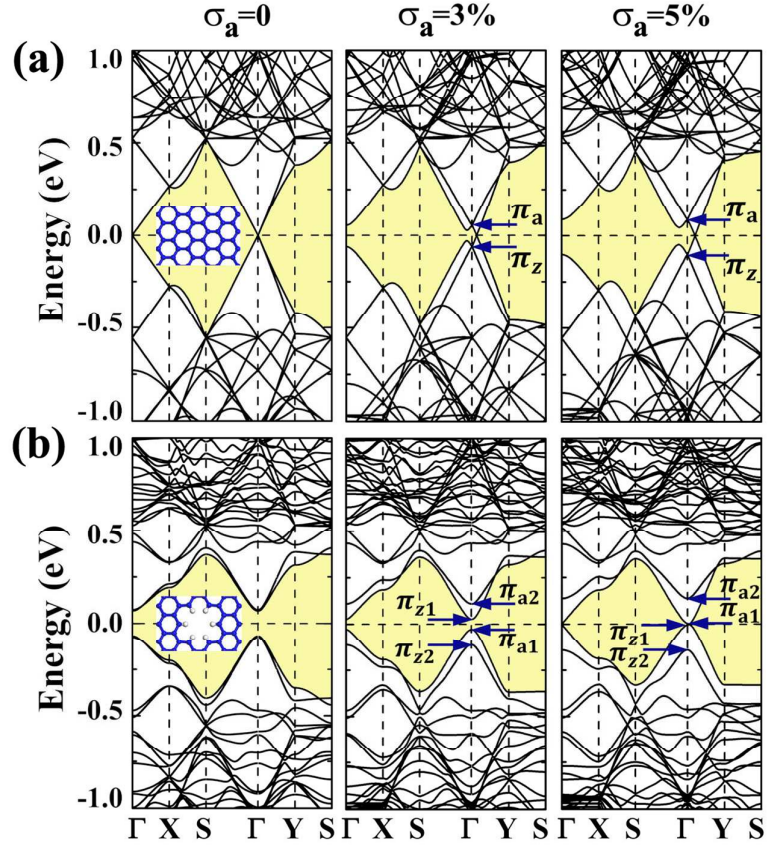
Figure S4. The calculated energy bandstructures for (6,6) PSS (a) and Si_6-antidot patterned (6,6) silicene superlattice (b) under 0%, 3%, and 5% σ_a strains, respectively.