

Supplementary Information

**Electric field induced band tuning, optical and
thermoelectric responses in tetragonal germanene: a
theoretical approach**

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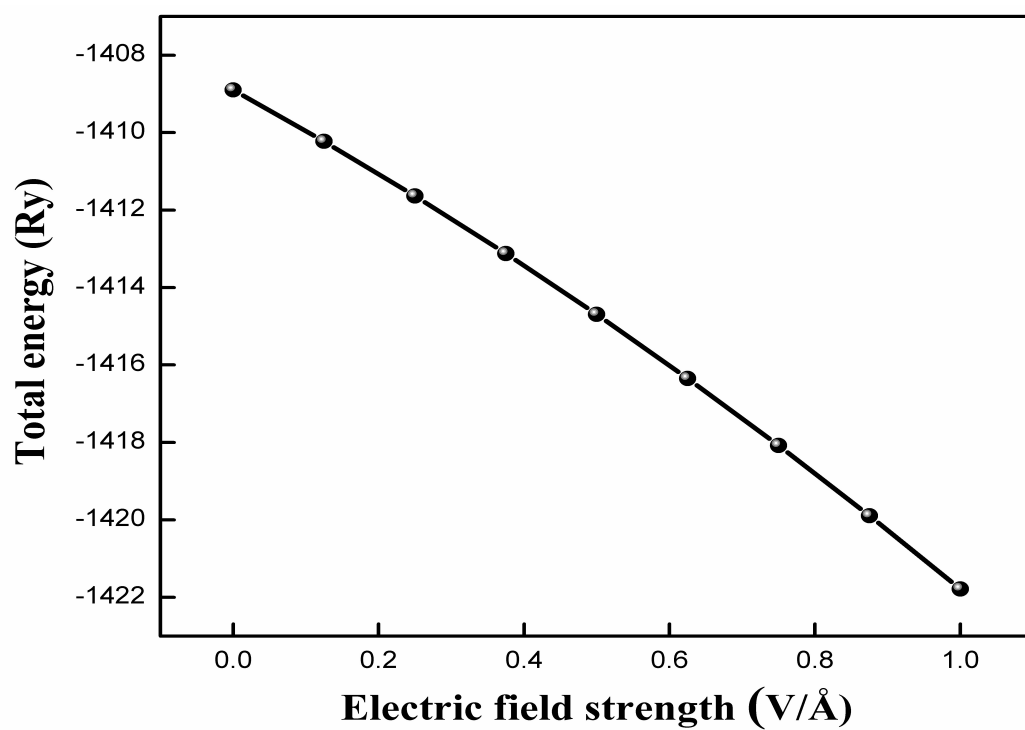
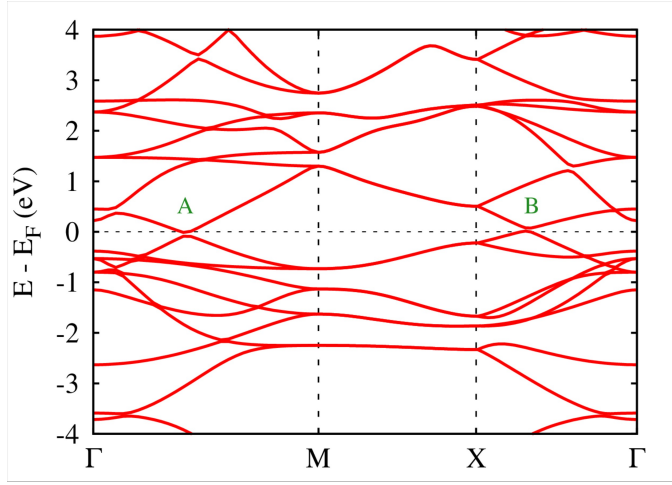
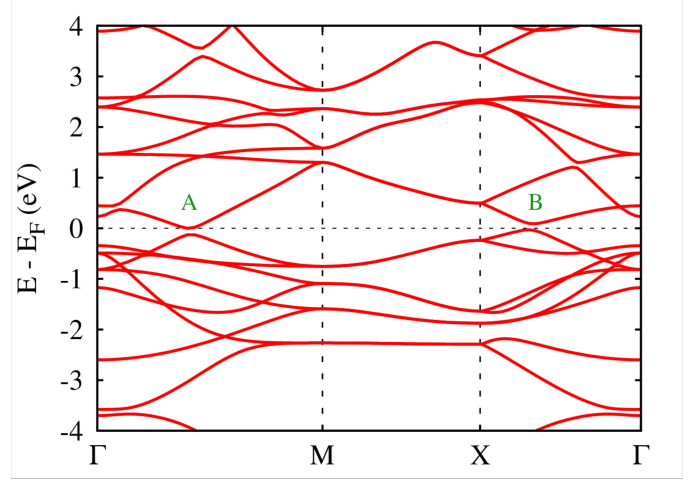


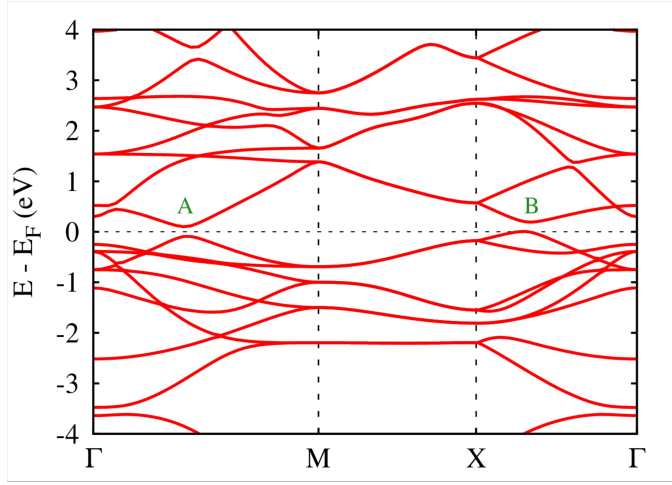
Figure 1 : Variation of total energy of the T-Ge system as a function of external electric field strength.



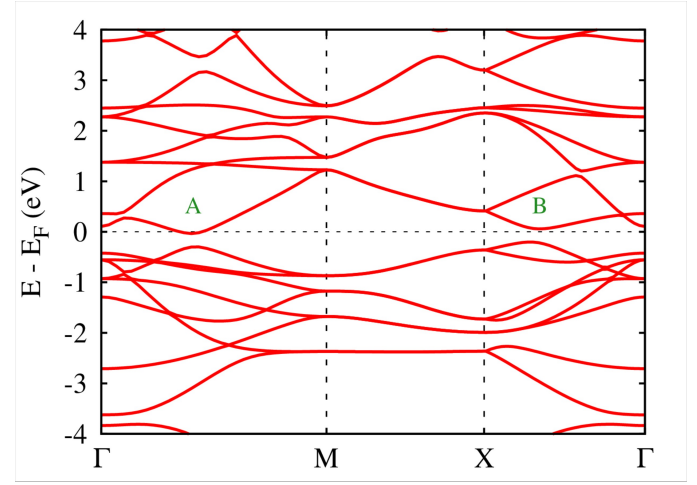
(a)



(b)

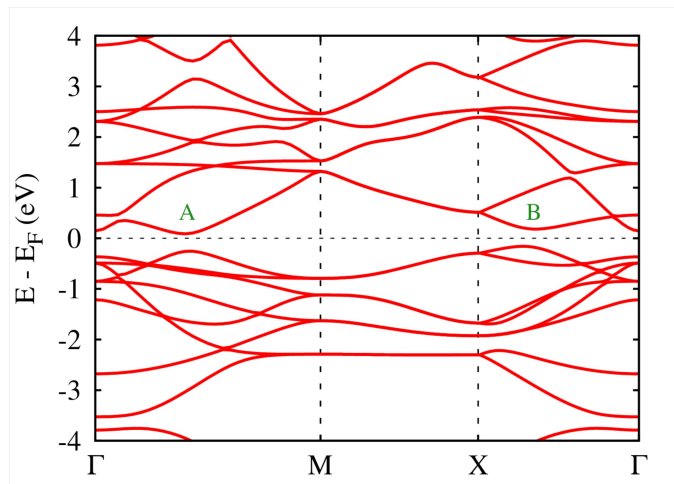


(c)

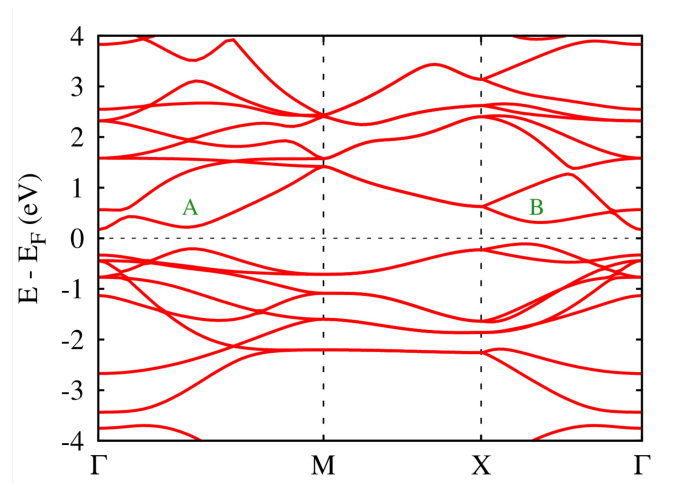


(d)

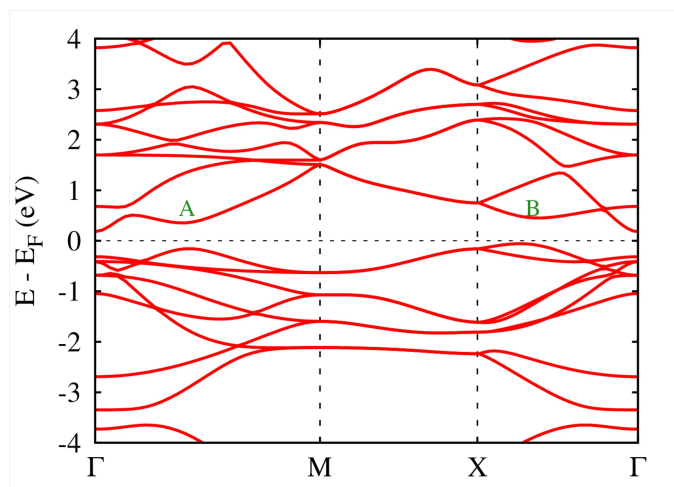
Figure 2 : DFT bandstructure of T-Ge in presence of external electric field of strength (a) 0.125 V/Å, (b) 0.250 V/Å, (c) 0.375 V/Å and (d) 0.500 V/Å respectively.



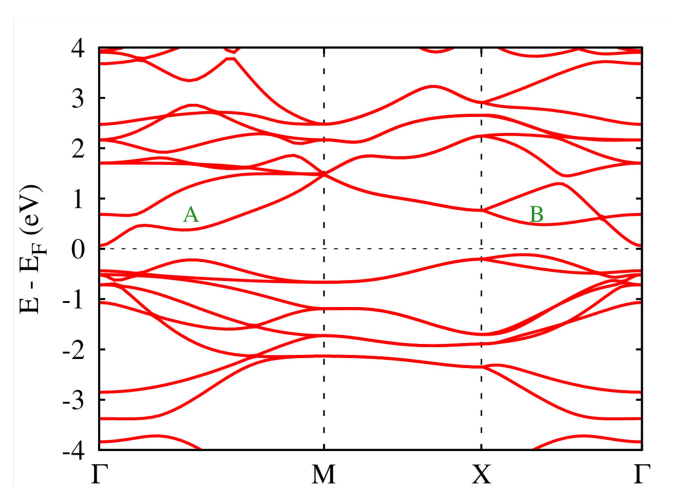
(a)



(b)



(c)



(d)

Figure 3 : DFT bandstructure of T-Ge in presence of external electric field of strength (a) 0.625 V/Å, (b) 0.750 V/Å, (c) 0.875 V/Å and (d) 1.000 V/Å respectively.