Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.
This journal is © the Owner Societies 2022

Electrically driven robust tuning of lattice thermal conductivity

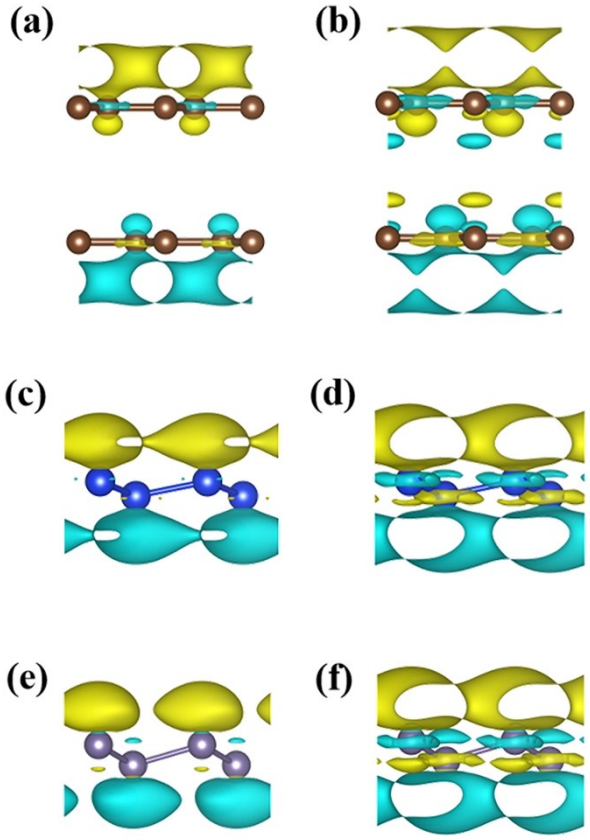
E Zhou[1, †], Donghai Wei[1, †], Jing Wu[1], Guangzhao Qin,[1, *] and Ming Hu[2, *]

[1]*State Key Laboratory of Advanced Design and Manufacturing for Vehicle Body, College of Mechanical and Vehicle Engineering, Hunan University, Changsha 410082, P. R. China*

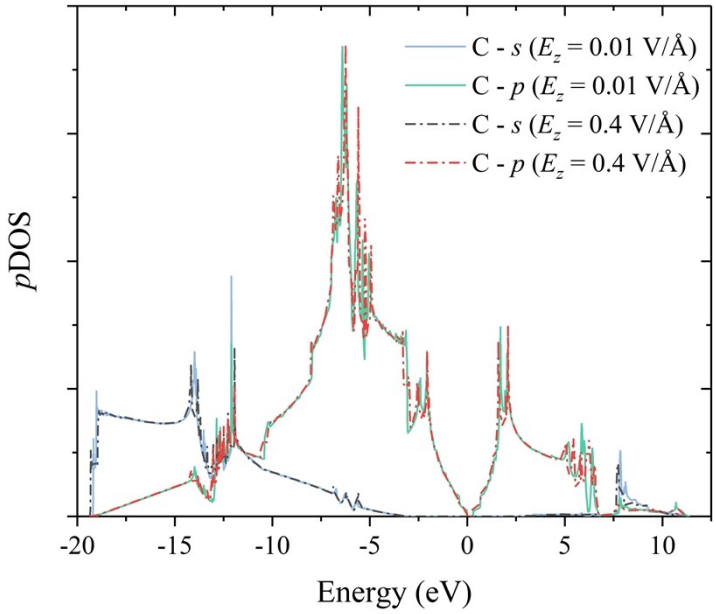
[2] *Department of Mechanical Engineering, University of South Carolina, Columbia, SC 29208, USA*

[†] These authors contributed equally.

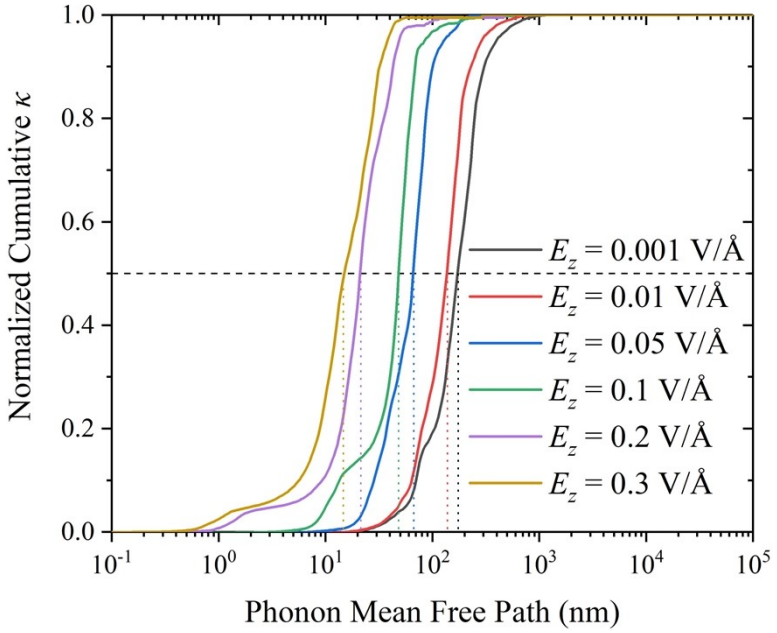
[*] Corresponding authors: G.Q. <gzqin@hnu.edu.cn>, M.H. <hu@sc.edu>



Supplemental Fig. S1 The difference in charge density under typical electric field in 0.05 (a,c,e) and 0.1 eV/Å (b,d,f) for bilayer graphene (a, b), silicene (c ,d), germanene (e, f). ($\Delta\rho = \rho(E_z) - \rho(E_z = 0)$) (yellow: positive accumulation of charge, blue: negative depletion of charge). The isosurface is set at 2×10^{-5}.



Supplemental Fig. S2 The projected density of states (*p*DOS) of C atoms with external electric field in bilayer graphene.



Supplemental Fig. S3 The normalized cumulative κ with respect to the phonon mean free path (MFP) for AB stacking bilayer graphene.