Electronic Supplementary Material (ESI) for Physical Chemistry Chemical Physics.

Nanostructure engineering of two-dimensional diamond towards high thermal conductivity and approaching zero Poisson's ratio

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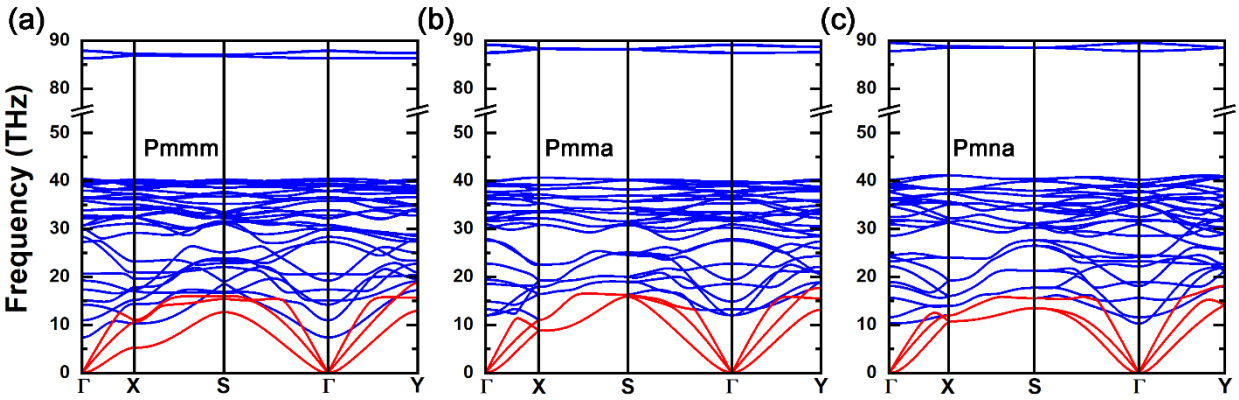

Fig.S1 The complete phonon dispersions of (a) *Pmmm*, (b)*Pmma*, (c)*Pmna* diamane.

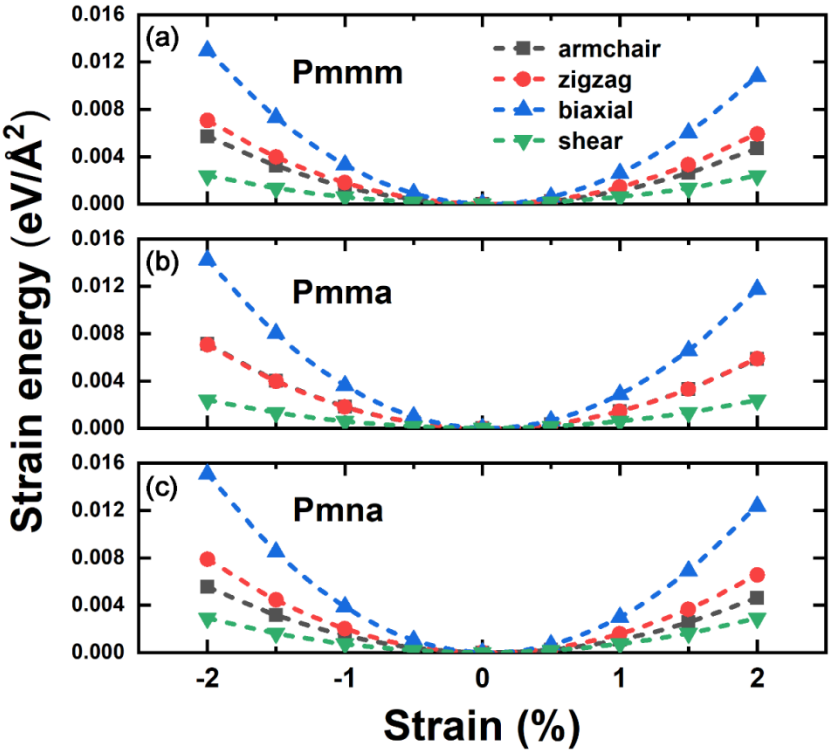

Fig.S2 The strain-energy vs. strain curves of (a) *Pmmm*, (b)*Pmma*, (c)*Pmna* diamane.

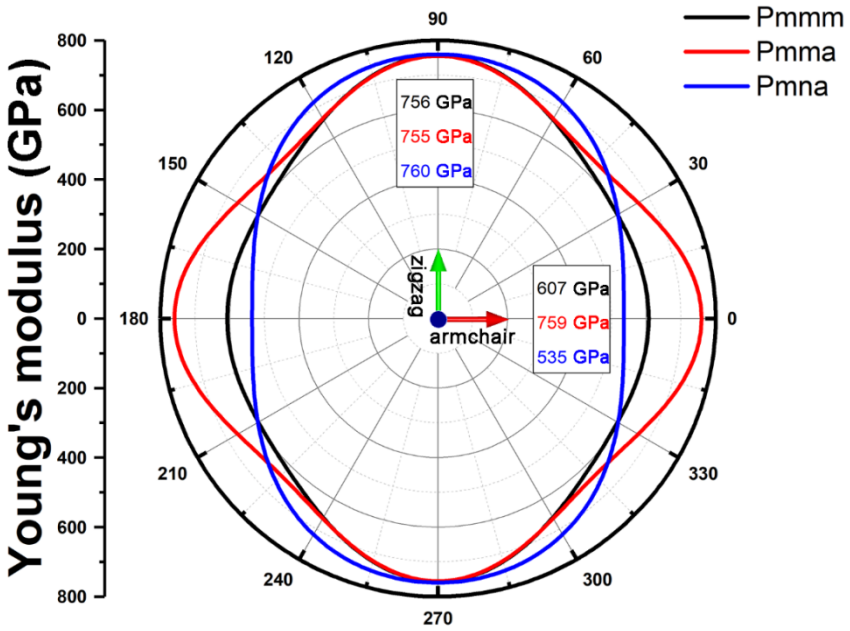

Fig.S3 The polar angle θ-dependent Young's modulus of rectangular diamanes in unit of GPa.