

Supplemental Material:

The multiple topological phases in a new family of compounds $ACrTe$ ($A = Na, K, Rb, Cs$) predicted by first-principles calculations

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(Dated: August 2, 2024)

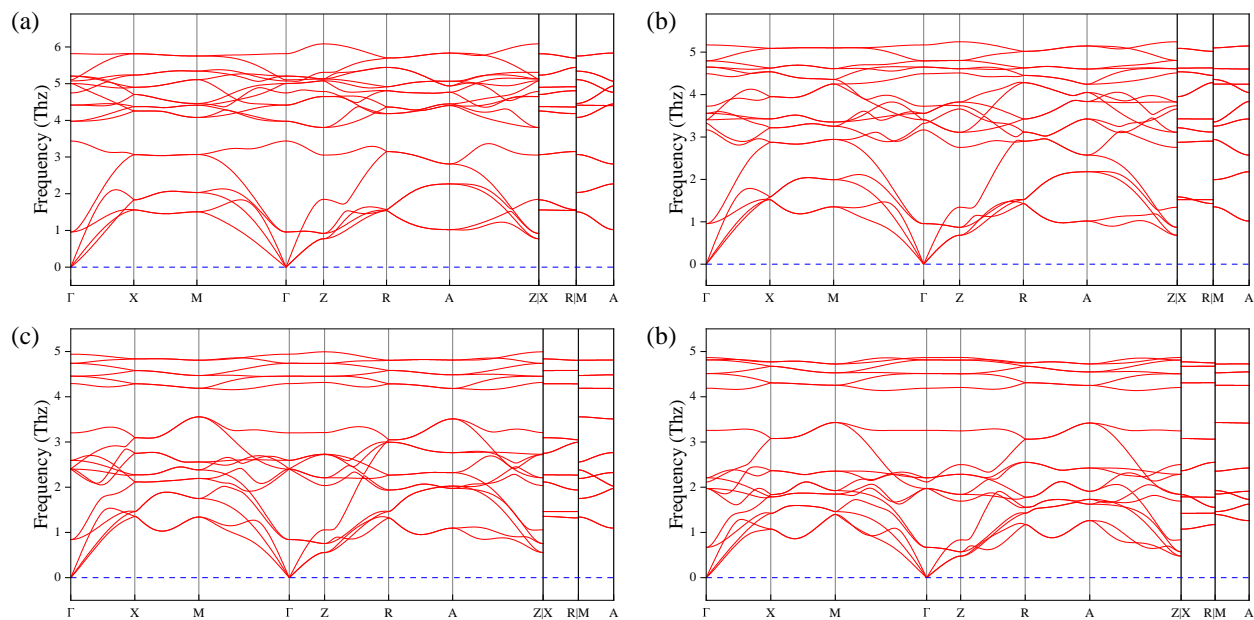


FIG. 1. Phonon spectrum for 3D bulk compound $ACrTe$ ($A = Na, K, Rb, Cs$) (a)-(d) NaCrTe, KCrTe, RbCrTe and CsCrTe, respectively. In the calculation, the Hubbard U takes 3eV.

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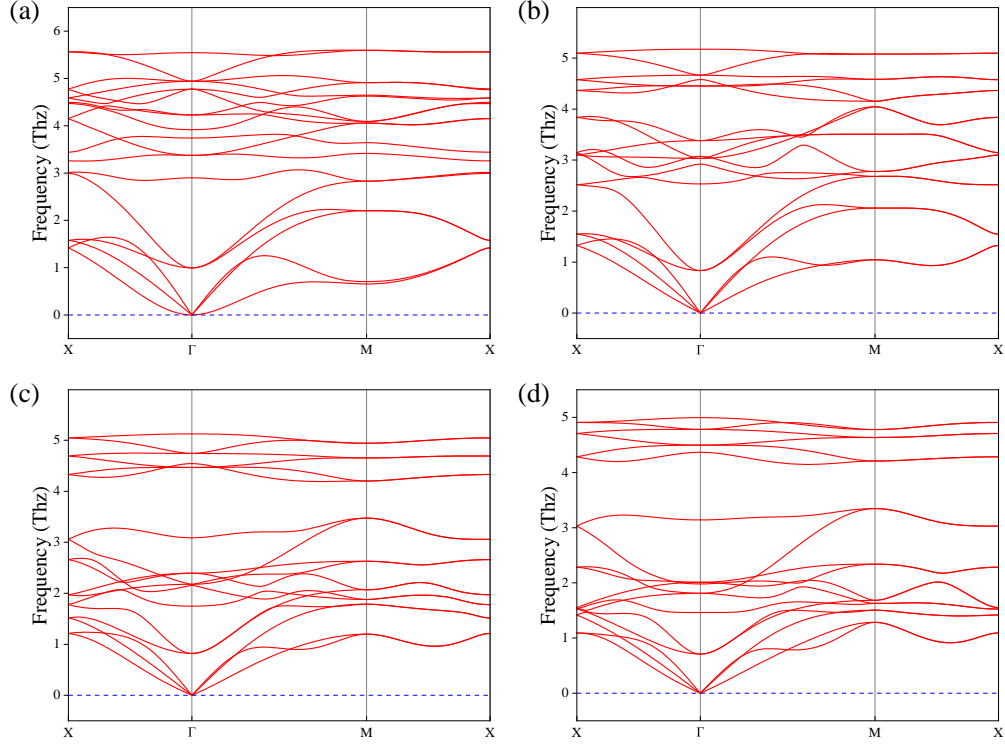


FIG. 2. Phonon spectrum for 2D monolayer case (a)-(d) NaCrTe, KCrTe, RbCrTe and CsCrTe, respectively. In the calculation, the Hubbard U takes 3 eV.

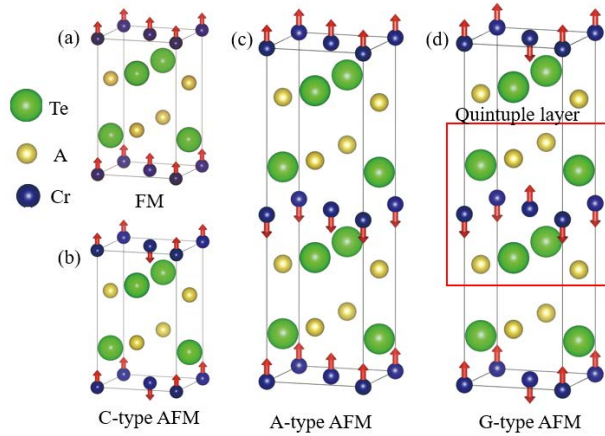


FIG. 3. 3D bulk crystal structure of ACrTe and the four considered magnetic configurations: (a) FM, (b) C-type AFM, (c) A-type AFM, and (d) G-type AFM.

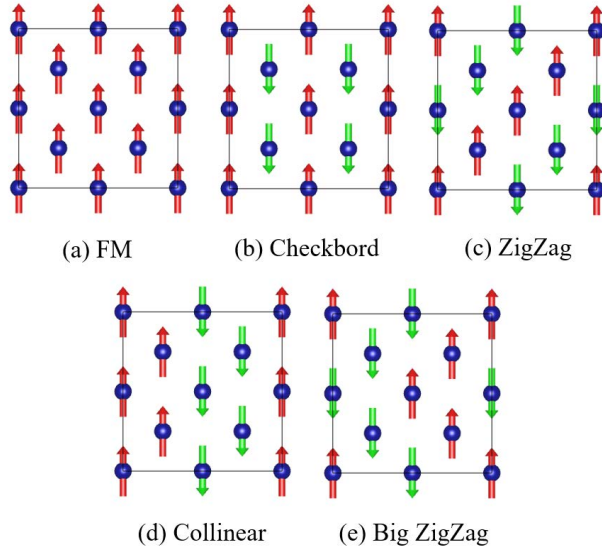


FIG. 4. Different magnetic configurations with 2×2 supercell studied for monolayer ACrTe class, including one ferromagnetic (FM) configuration and four antiferromagnetic (AFM) configurations as labeled.