Supplementary materials for "Fully spin-polarized quadratic non-Dirac bands realized quantum anomalous Hall effect"

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1. TABLE SI illustrating the energy difference of antiferromagnetic and ferromagnetic states, magnetocrystalline anisotropy energy.
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4. Figure S3 displaying the charge density of the non-Dirac state.
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TABLE I. The energy difference of antiferromagnetic and ferromagnetic states and magnetocrystalline anisotropy energy (MAE) of the alkali earth metal BaX (X = Si, Ge, Sn).

	E_{AFM}-E_{FM} (meV)	MAE (meV)
BaSi	246.43	1.63
BaGe	239.48	8.85
BaSn	225.09	26.37

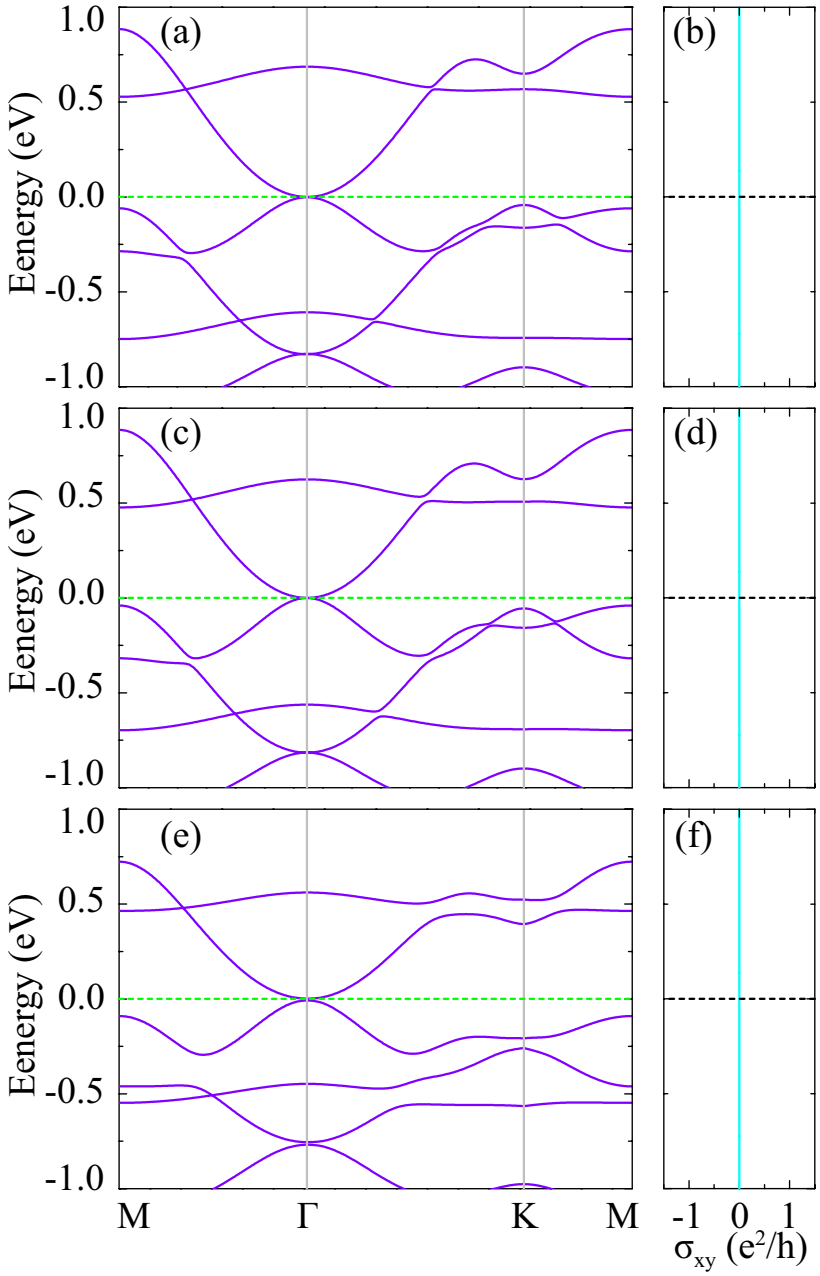

FIG. S1. Band structures with SOC as well as anomalous Hall conductivity (σ_{xy}) of the (a, b) BaSi, (c, d) BaGe and (e, f) BaSn with [100] magnetization direction.

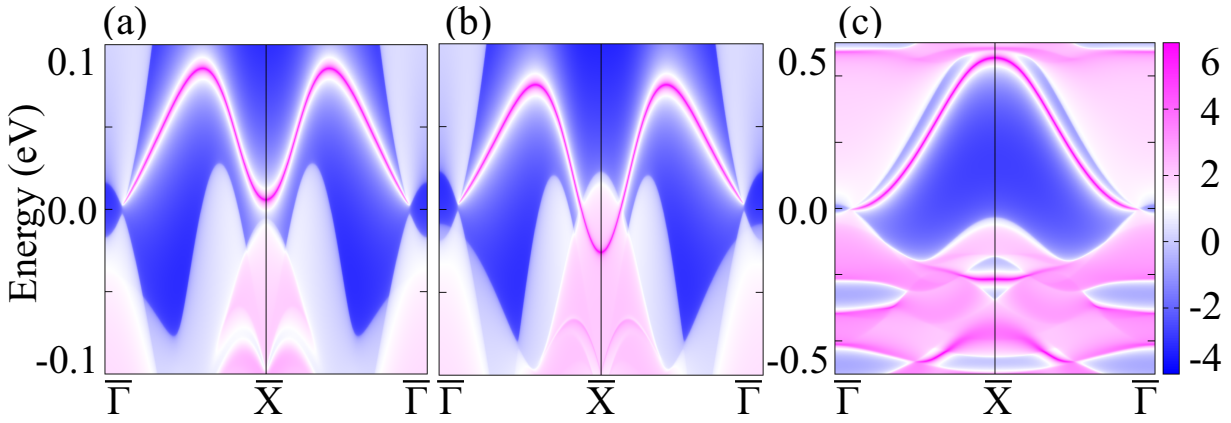

FIG. S2. Calculated edge state of a semi-infinite sheet of the (a) BaSi, (b) BaGe and (c) BaSn with [100] magnetization direction.

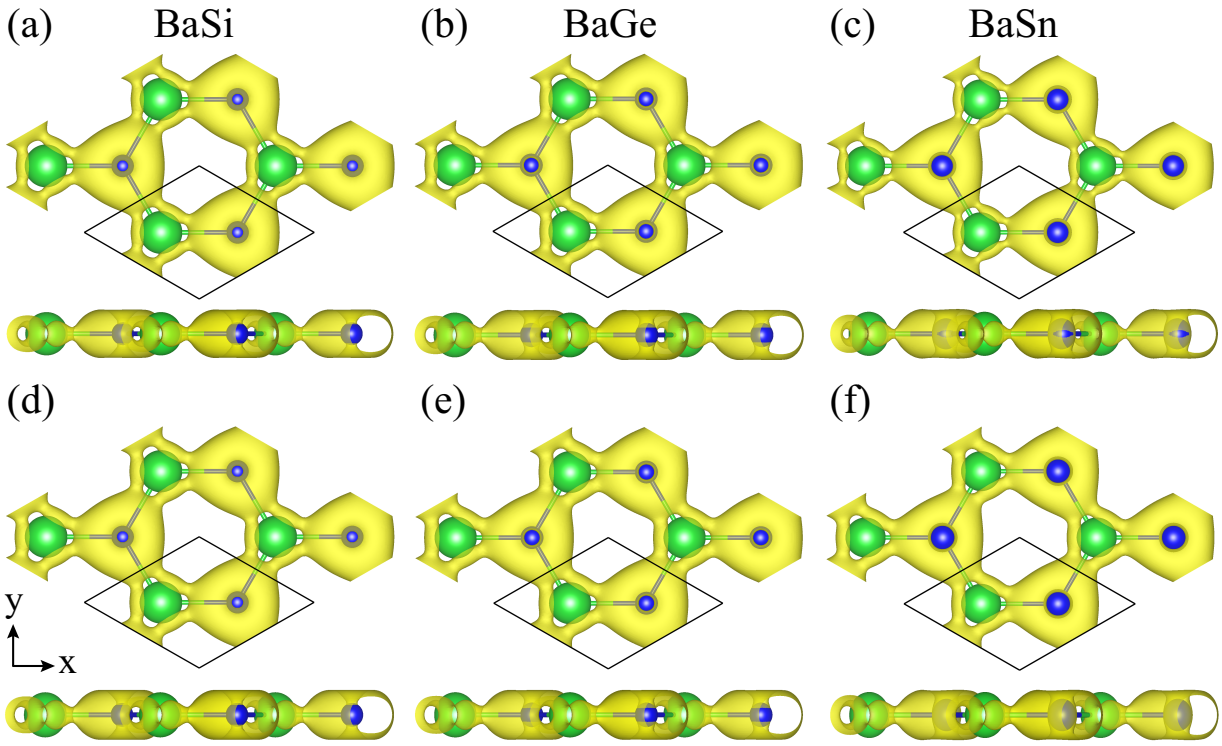

FIG. S3. (a-f) The charge density of the non-Dirac state are calculated for BaSi, BaGe and BaSn, respectively. (a-c) is valence band maximum of the non-Dirac state. (d-f) is conduction band minimum of the non-Dirac state.

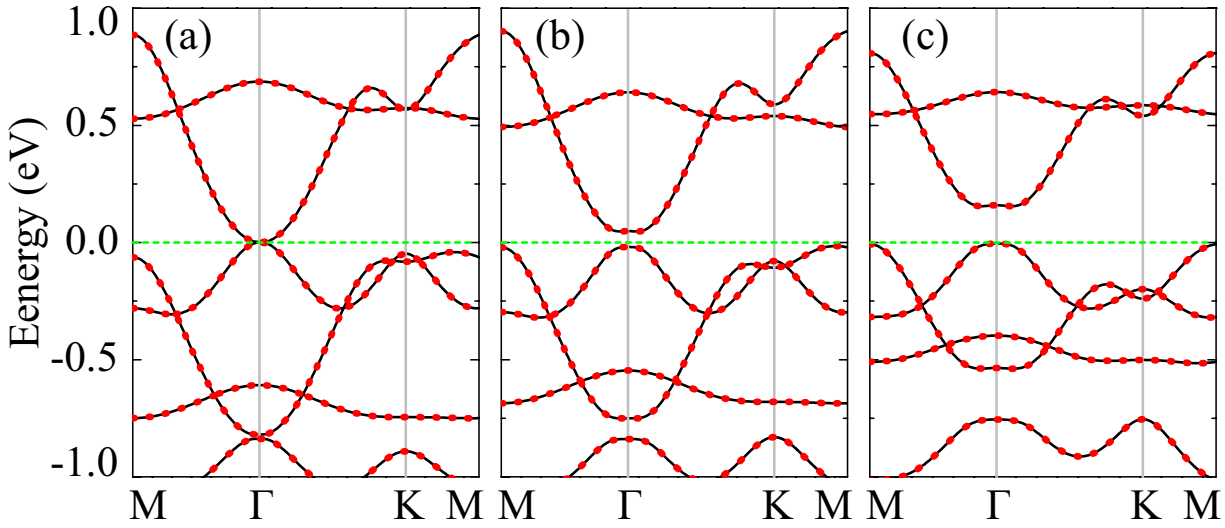

FIG. S4. The comparison of Wannier90 fitting and DFT results. The black lines and red dot lines represent the DFT results and Wannier90 fitting, respectively.