

Supplementary information for: Large magnetoresistance and thermoelectric properties in quasi-skutterudite $\text{Ca}_3\text{Pt}_4\text{Sn}_{13}$ single crystal

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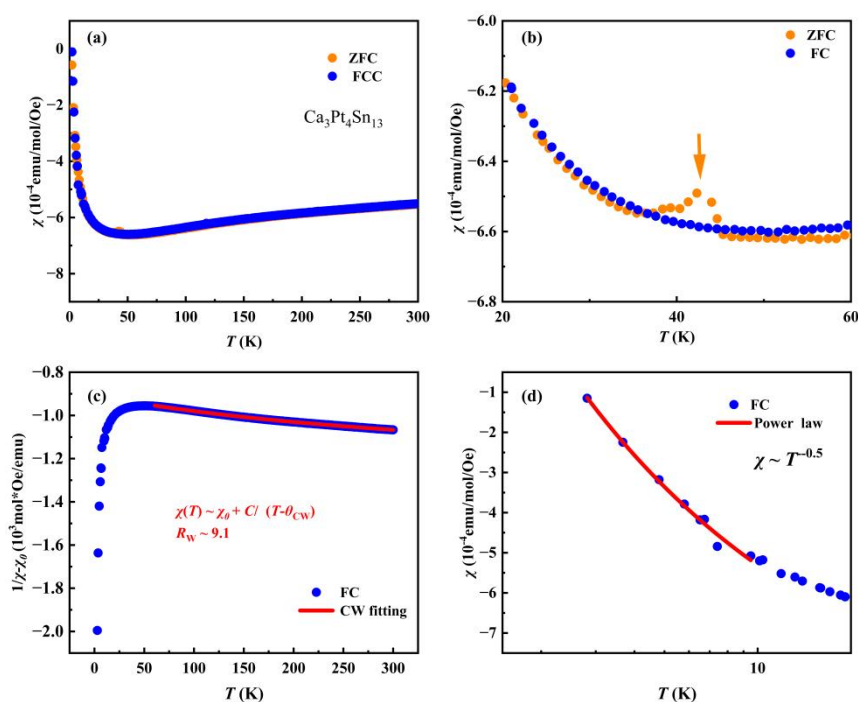


Figure S1: (a) Temperature dependence of the magnetic susceptibility $\chi(T)$ in a field of 1 T for $H \perp [110]$. (b) shown the enlarge plot for the susceptibility data. (c) Temperature dependence of $1/(\chi - \chi_0)$ is plotted with the Curie-Weiss fitting. The R_w coefficient has been evaluated as ~ 9.1 for the $\text{Ca}_3\text{Pt}_4\text{Sn}_{13}$ crystal, while the value is 1.7 for the $\text{Ca}_3\text{Ir}_4\text{Sn}_{13}$ crystal. (d) Log-log plot of low temperature magnetic susceptibility data and fitted curve. The low temperature magnetic susceptibility curve has been fitted by using the expression of $\chi \sim T^{-\alpha}$.

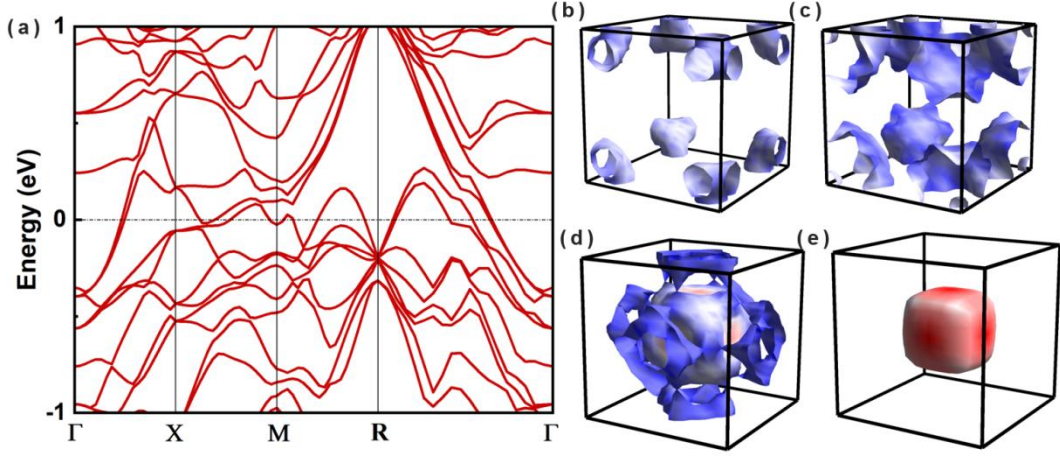


Figure S2: (a) Calculated band structure of $\text{Ca}_3\text{Pt}_4\text{Sn}_{13}$ with the spin-orbit coupling. (b-e) Calculated three-dimensional Fermi surface of $\text{Ca}_3\text{Pt}_4\text{Sn}_{13}$ with the spin-orbit coupling.

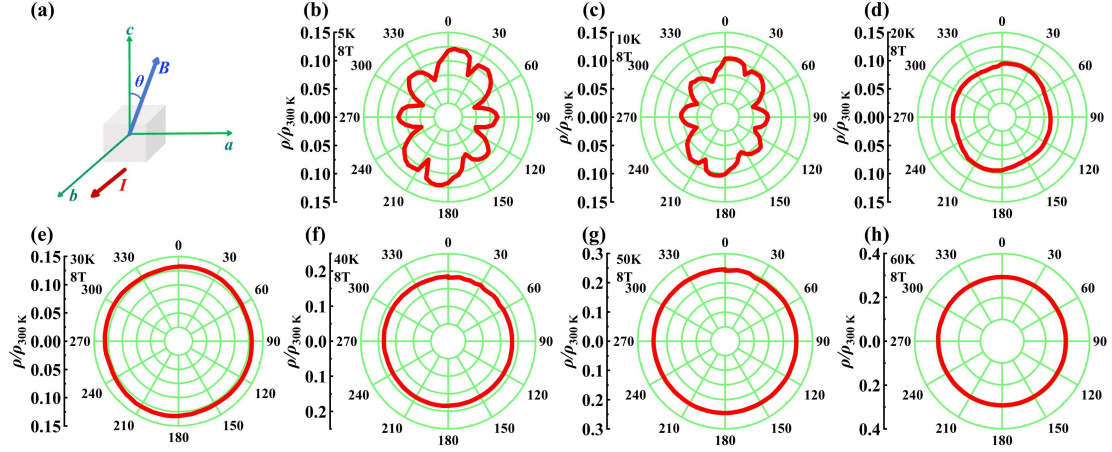


Figure S3: (a) schematic of the experimental configuration for AMR in the ac planes. (b)-(h) Polar plots illustrating the AMR effect in the ac plane under 8 T at several temperatures.

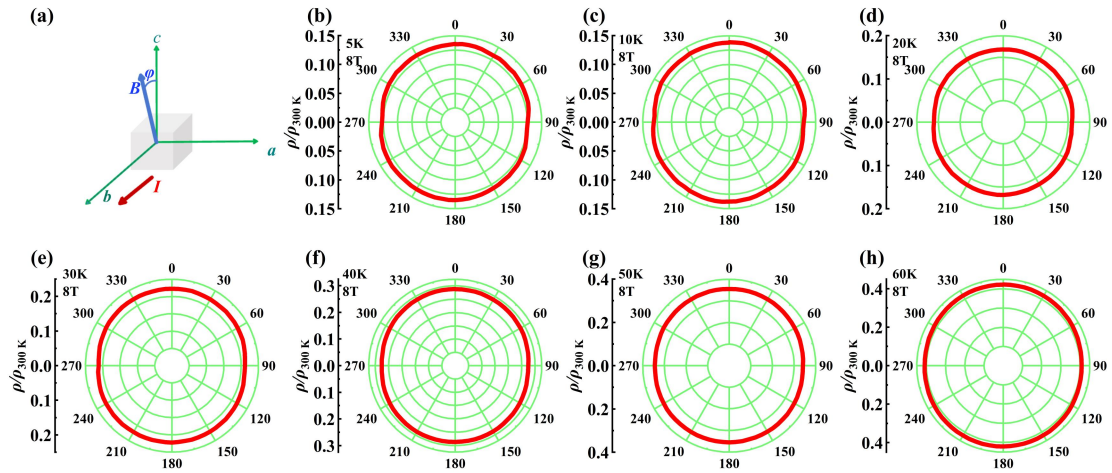


Figure S4: (a) schematic of the experimental configuration for AMR in the bc planes. (b)-(h) Polar plots illustrating the AMR effect in the bc plane under 8 T at several temperatures.