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Quantum oscillations in a minimal model for pyrochlore iridates

JUN WON RHIM, Korea Institute for Advanced Study, YONG BAEK KIM, University of Toronto — Motivated by recent experiments on $\text{Pr}_2\text{Ir}_2\text{O}_7$, we provide a theory of quantum oscillations in a minimal model for pyrochlore iridates. Focusing on the conduction electron degrees of freedom with strong spin-orbit coupling and considering the electronic structure near the Fermi level, we compute quantum oscillation signals in the paramagnetic state of the model. We compare our theoretical results with existing experimental data on $\text{Pr}_2\text{Ir}_2\text{O}_7$ and discuss implication to future experiments.

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