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Non-universal weak antilocalization effect in cubic topological Kondo insulators MAXIM DZERO, Kent State University, MAXIM VAVILOV, University of Wisconsin-Madison, KOSTYANTIN KECHEDZHI, QuAIL and USRA, NASA Ames Research Center, VICTOR GALITSKI, University of Maryland — In this talk we present the results of our study of the quantum correction to conductivity on the surface of cubic topological Kondo insulators with multiple Dirac bands. We considered the model of time-reversal invariant disorder which induces the scattering of the electrons within the Dirac bands as well as between the bands. When only intraband scattering is present we found three long-range diffusion modes leading to weak antilocalization correction to conductivity which remains independent of the microscopic details such as Fermi velocities and relaxation times. Interband scattering gaps out two diffusion modes leaving only one long-range mode. Depending on the value of the phase coherence time, either three or only one long-range diffusion modes contribute to weak localization correction rendering the quantum correction to conductivity non-universal.

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