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Electromagnetic response of a chiral p-wave superconductor

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— We study the response of a time-reversal symmetry breaking $p_x + ip_y$ superconductor to an external electromagnetic wave and calculate the ac Hall conductivity, paying particular attention to gauge invariance, the effects of the topological Chern Simons term in the effective action and contributions from collective modes. We also consider the effects of a long range interaction such as the Coulomb interaction on the collective modes and the Hall conductivity. These results will also be discussed in the context of the recent Kerr rotation experiments on Strontium Ruthenate by Xia et al. [1]

[1] J. Xia, Y. Maeno, P. T. Beyersdorf, M. M. Fejer, and A. Kapitulnik, *Phys. Rev. Lett.* **97**, 167002 (2006)

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