

Abstract Submitted
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Kerr effect from diffractive skew scattering in chiral $p_x \pm ip_y$ superconductors¹ ELIO KÖNIG, ALEX LEVCHENKO, University of Wisconsin-Madison — We calculate the temperature dependent anomalous ac Hall conductance $\sigma_H(\Omega, T)$ for a two-dimensional chiral p -wave superconductor. This quantity determines the polar Kerr effect, as it was observed in Sr_2RuO_4 [J. Xia *et al.*, Phys. Rev. Lett. **97**, 167002 (2006)]. We concentrate on a single band model with arbitrary isotropic dispersion relation subjected to rare, weak impurities treated in the Born approximation. As we explicitly show by detailed computation, previously omitted contributions to extrinsic part of an anomalous Hall response, physically originating from diffractive skew scattering on quantum impurity complexes, appear to the leading order in impurity concentration. By direct comparison with published results from the literature we demonstrate the relevance of our findings for the interpretation of the Kerr effect measurements in superconductors.

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