Intrinsic mechanism of dichroism in chiral multiband superconductors

Karol Izydor Wysokiński,[1] Martin Gradhand,[2] and James F. Annett[2]

[1] *Institute of Physics, M. Curie-Sklodowska University, ul. Radziszewskiego 10, 20-031 Lublin*

[2] *H . H. Wills Physics Laboratory, University of Bristol, Tyndall Ave, BS8-1TL, UK*

We shall present an analysis of the Hall conductivity $\sigma_{xy}(\omega, T)$ in time reversal symmetry breaking states of exotic superconductors. The intrinsic Kerr signal appears in a general multiband system. This is a novel mechanism which may explain the Kerr effect observed in strontium ruthenate and possibly other multiband superconductors. The proposed mechanism does not rely on impurity scattering or a finite width of the incident photon beam.

References:

[1] K.I. Wysokinski, J.F. Annett, B.L. Gyorffy, Phys. Rev. Lett. **108** 077004 (2012); Martin Gradhand, Karol I. Wysokinski, James F. Annett, and Balazs L. Györffy Phys. Rev. B **88**, 094504 (2013).