

# Magnetoresistance of semi-metals : the case of bismuth and antimony

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Magnetoresistance is the change in the electrical resistance of a material in the presence of a magnetic field. As early as 1928, Kapitza discovered that the electric resistivity of bismuth increases by many orders of magnitude upon the application of a large magnetic field. More recently large unsaturated magnetoresistance has been reported in numerous semi-metals. Many of them have a topologically non-trivial band dispersion, such as Weyl nodes or lines. Both the amplitude of magnetoresistance and its field dependence have been put under scrutiny and are explored and discussed by experimentalists and theorists. Here, I will discuss the case of the two elemental semi-metals bismuth and antimony. I will show that antimony displays the largest high-field magnetoresistance among all known semi-metals which can be captured by a modified semi-classical theory.

[1] P. Kapitza, The study of the specific resistance of bismuth crystals and its change in strong magnetic fields and some allied problems, Proc. R. Soc. A, 119, 358 (1928) [2] B. Fauqué et al., <http://lanl.arxiv.org/abs/1803.00931>