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Lattice simulation of Chiral Magnetic Effect in Dirac Semimetals

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Recently discovered Dirac Semimetals Na3Bi and Cd3As2 provide perfect opportunity for investigation of phenomena which were usually attibuted to high energy physics. The reason for this is the existence of two massless Dirac fermions in the quasi-particle dispersion relation for these materials. One of the manifestations of the chiral anomaly, Chiral Magnetic Effect, can be be observed in these materials as a large magnetoconductivity. We study the conductivity of these materials in external magnetic field within lattice effective field theory approach. Our results confirm the existence of Chiral Magnetic Effect in Dirac Semimetals.

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