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Anomalous transport phenomena on the lattice

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The interplay between quantum anomalies and electromagnetic fields leads to a series of non-dissipative transport effects in QCD, such as the Chiral Magnetic Effect and the Chiral Separation Effect, among others. In this work we study anomalous transport phenomena with lattice QCD simulations using improved staggered quarks in the presence of a background magnetic field. In particular, we calculate the conductivities both in the case of free fermions and in full QCD, analyzing the dependence of these coefficients with several parameters, such as the temperature and the quark mass

Primary author(s) : Dr BRANDT, Bastian (Bielefeld University); Mr GARNACHO VELASCO, Eduardo (Bielefeld University); Dr CUTERI, Francesca (Goethe University Frankfurt); Dr MARKÓ, Gergely (Bielefeld University); Dr ENDRÓDI, Gergely (Bielefeld University)

Presenter(s) : Mr GARNACHO VELASCO, Eduardo (Bielefeld University)

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