Workshop on Chirality, Vorticity and Magnetic Field in Heavy Ion Collisions 2018

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The chiral magnetic effect in planar condensed matter systems

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The chiral magnetic effect (CME) is a macroscopic manifestation of the chiral anomaly. Despite of the effort to observe it in the quark gluon plasma produced in heavy ion collisions, no unumbigous observable could be defined so far. By the other side, certain condensed matter systems that contain Dirac-like charge carriers have shown to be a suitable environment to reproduce the CME. We propose that, besides the zirconium pentatelluride in which the CME has been observed, it must be possible to construct an arrangement based on planar Dirac materials that works as an analogue of the CME.

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