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## Phase diagram and Chiral Magnetic Effect in Dirac Semimetals from Lattice simulation

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### Content

Dirac Semimetals Na<sub>3</sub>Bi and Cd<sub>3</sub>As<sub>2</sub> are recently discovered materials, which low energy electronic spectrum is described by two flavours of massless 3+1D fermions. In order to study low energy properties of these materials we formulated lattice field theory with rooted staggered fermions on anisotropic lattice. It is shown that in the limit of zero temporal lattice spacing this theory reproduces effective theory of Dirac semimetals. Using the lattice field theory we study the phase diagram of Dirac semimetals in the plane effective coupling constant - Fermi velocity anisotropy. We also measure conductivity within lattice field theory in external magnetic field. Our results confirm the existence of Chiral Magnetic Effect in Dirac Semimetals.

### Preferred track (if multiple tracks have been selected)

Applications Beyond QCD

**Primary author(s)** : Mr. KOTOV, Andrey (Institute for Theoretical and Experimental Physics); BRAGUTA, Victor (Institute for Theoretical and Experimental Physics); KATSNELSON, Mikhail (Radboud University); BOYDA, Denis (FEFU)

**Presenter(s)** : Mr. KOTOV, Andrey (Institute for Theoretical and Experimental Physics)

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