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Quark and Gluon Propagation in Two-Colour Quantum Chromodynamics at High Density

Content

QCD at high chemical potential has interesting properties such as diquark condensation and deconfinement of quarks. Two-colour QCD, which enables numerical simulations on the lattice, constitutes a laboratory to study QCD at high chemical potential.

We studied two colour QCD at high density, using the Nambu-Gorkov formalism, which puts the quarks and antiquarks into a single spinor. We examine the Gorkov propagator and in particular, study the form factors of the Gorkov propagator making use of the numerical results and its analytical properties such as the symmetries it obeys. We also studied the gluon propagation in dense medium and how the chromoelectric and chromomagnetic components behave with change in temperature and the chemical potential.

Area of contribution

Theory and Phenomenology

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