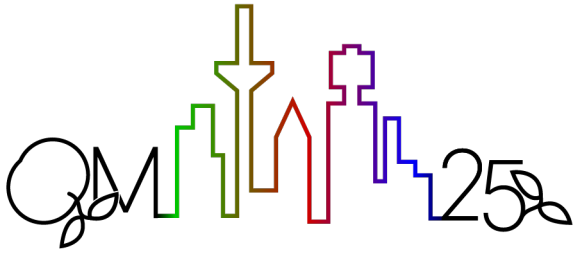

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Fluctuations and correlations of quark spin in hot and dense QCD matter

In this work, we discuss the impact of phase transitions on quark spin fluctuation and correlation. We propose a novel observable for quark-antiquark correlation that relates to vector meson spin alignment and $\Lambda - \bar{\Lambda}$ correlation. Using the NJL model, we qualitatively study the properties of quark-antiquark spin correlation. Our findings reveal a peak structure near the CEP, which could serve as an experimental signature of the CEP and explain the non-monotonic behavior of ϕ meson alignment at low collision energies.

Category

Theory

Collaboration (if applicable)

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