Wavelet Analysis In Search Of Disoriented Chiral Condensate at $\sqrt{s} = 130$ GeV Au + Au Collisions at RHIC

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Abstract

At high temperatures and densities chiral symmetry is approximately realized in QCD, but spontaneously broken in the normal nuclear matter by the formation of a chiral condensate. High-energy nucleus-nucleus collisions may produce the extended region of phase space within which chiral symmetry can be temporarily restored. The subsequent non-equilibrium relaxation towards normal vacuum may produce Disoriented Chiral Condensate (DCC). This effect results in anomalous isospin fluctuations and subsequently it can lead towards large local charged multiplicity fluctuations in the $\eta - \phi$ domains. The multi-resolution wavelet analysis technique will be applied in order to study the fluctuations of charged particle density in $\eta - \phi$ domains from the correlated tracks using the PHENIX central arm detectors.

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