

Di-electron Production in Heavy-ion Collisions

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The electromagnetic probes such as photons and dileptons do not participate in the strong interactions during the space-time evolution of the created system in the heavy-ion collisions. Thus they contain the undistorted information of the hot-dense medium and hence are used as signatures for probing the medium properties. Theoretical predictions believe that the dileptons from thermal emission are different from those produced in hadronic freeze-out, thus studying the behavior of dileptons reaction with medium versus different colliding energies is considered as an ideal tool to trace the possible partonic-hadronic transition in the QCD phase diagram. In experiment, it is very difficult to measure such a signal of the thermal dileptons due to dominant sources from hadronic process. Thus it is crucial to understanding how the background sources behave in a colliding beam energy scan (BES).

In this talk we focus on the model calculations of dielectrons from vector meson decays and heavy quark dynamic correlations. The dielectron mass spectra, effective temperature, and possible medium modifications versus colliding energies will be discussed. The dilepton elliptic flow (v_2) in 200 GeV Au+Au collisions will also be shown. The comparison with recent RHIC BES measurements will be presented.

Keywords

di-lepton, heavy-ion collisions, QGP, Beam Energy Scan (BES)

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