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Thermal dielectron measurement in Au+Au collisions with STAR BES-II data

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According to lattice Quantum Chromodynamics (QCD) prediction, there exists a phase transition from hadronic matter to Quark Gluon Plasma (QGP) at extreme high temperatures or baryon densities. Thermal dielectrons provide a unique probe to study the properties of the hot QCD medium created in relativistic heavy ion collisions. They can be emitted during the whole evolution of the medium and do not interact strongly with the medium. The invariant mass distribution of thermal dielectrons in different mass regions enables us to extract the temperature of the hot QCD medium in different phases.

The STAR experiment collected high statistic datasets in Au+Au collisions at $\sqrt{s_{NN}} = 7.7 - 19.6$ GeV during the Beam Energy Scan program phase II (BES-II). In this talk, preliminary results of the dielectron invariant mass spectra in Au+Au collisions at $\sqrt{s_{NN}} = 9.2$ GeV will be presented and discussed in the context of other BES-II dielectron results. Furthermore, the temperature extracted from the spectra at these energies and the physics implications will also be discussed.

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Classification de thématique: Strangeness in Astrophysics, Other topics