Thermal dielectron measurements in Au+Au collisions at $\sqrt{s_{NN}}$ =14.6 and 19.6 GeV with the STAR experiment

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Dielectrons emitted during the evolution of the hot and dense QCD medium created in relativistic heavy-ion collisions offer an effective way to probe the medium properties, as they do not interact via the strong force. The rate of the dielectron emission is proportional to the medium's electromagnetic spectral function. In the dielectron mass range between 400 MeV/c^2 and 800 MeV/c^2, the spectral function probes the in-medium ρ meson propagator while the low energy range of the spectral function provides information about the medium's electrical conductivity. Therefore, by measuring dielectron production, we can study the microscopic interactions between the electromagnetic current and the medium.

The STAR experiment has recorded large datasets of Au+Au collisions in the Beam Energy Scan Phase-II (BES-II) program, spanning center-of-mass energies ($\sqrt{s_{\rm NN}}$) from 3-54.4 GeV. The dielectron measurement also benefits from detector upgrades installed for BES-II. In this poster, we will report on the systematic measurements of the thermal dielectrons produced in Au+Au collisions at $\sqrt{s_{\rm NN}}$ = 14.6 and 19.6 GeV with the STAR experiment.