

Dielectron production in Au+Au collisions at $\sqrt{s_{NN}} = 39 \text{ GeV}$ at STAR

During the beam energy scan in 2010 a wide range of beam energies has been explored for Au+Au collisions using the STAR detector at RHIC. With minimum material budget in the tracking part of the detector this run is particularly suited for the investigation of virtual photons originating from the hot and dense medium created in heavy ion collisions. The completed installation of the STAR time-of-flight detector is a further distinctive feature which allows the particles' velocity to be used for particle identification in addition to their energy loss in the time projection chamber. As electromagnetic probes, dielectron pairs do not interact strongly with the medium and hence carry direct information of its properties at the time of production. Thus, measurements of dielectron emissivity in heavy ion collisions provide an additional tool for the study of the quark gluon plasma. For a center-of-mass energy of $\sqrt{s_{NN}} = 39 \text{ GeV}$, 170M events have been taken. The poster presents the status of an ongoing dielectron analysis of this high statistics sample. It concentrates on particle identification, background rejection and subtraction, and the reconstruction of dielectron pairs up to $M_{inv}^{e^+e^-} = 3.5 \text{ GeV}/c^2$.

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