

Measurements of electrons from semi-leptonic heavy flavor decays in p+p and Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV at STAR

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Heavy quarks are predominantly produced at early stages of high-energy heavy-ion collisions due to their large masses, and thus experience the whole evolution of the Quark-Gluon Plasma (QGP). Studies of interactions between heavy quarks and the QGP can provide new insights to the properties of the QGP. Heavy quark production measured in p+p collisions serves as a baseline to similar measurements in heavy-ion collisions, and is expected to be described by perturbative Quantum Chromodynamics calculations. Therefore measurements of heavy quark production via measuring the electrons from semi-leptonic decays of heavy flavor hadrons, also known as Non-Photonic Electron (NPE), in both p+p and Au+Au collisions are crucial.

In this talk, we will present the updated results of NPE production in p+p collisions at $\sqrt{s} = 200$ GeV from the STAR experiment with much improved precision and wider kinematic coverage than previous measurements. We will also show the results of B-hadron contribution to NPE extracted from azimuthal correlations between NPE and charged hadrons in p+p collisions. The nuclear modification factor (R_{AA}) for NPE in Au+Au collisions at $\sqrt{s_{NN}} = 200$ GeV using 2010 data will be presented. Finally, we will show the analysis status of separating B- and D-decayed electrons utilizing the new Heavy Flavor Tracker as well as measuring NPE R_{AA} in Au+Au collisions with 2014 data.