

Title

Reconstruction of  $K^{*\pm}(892)$  in Au+Au Collisions at  $\sqrt{s_{NN}} = 200$  GeV

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Abstract

The Relativistic Heavy Ion Collider (RHIC) produces a hot, dense and deconfined Quantum ChromoDynamics (QCD) medium, called the quark-gluon plasma (QGP), with Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV. The  $K^{*\pm}(892)$  resonance is a short-lived particle with a lifetime shorter than the expected lifetime of the QGP. The  $K^*$  production may provide an effective tool to probe the QGP properties, such as strangeness enhancement. Experimentally,  $K^{*\pm}$  analysis is difficult and less studied previously because of large combinatorial background. In recent years, improvements in data sample statistics and particle identification capability promise better  $K^{*\pm}$  measurements.

In this presentation, we report the reconstruction of  $K^{*\pm}$  resonance via the hadronic decay channel  $K^{*\pm}(892) \rightarrow K_S^0 \pi^\pm$  as a function of transverse momentum ( $p_T$ ) up to 5 GeV/c for various collision centrality classes. The data are Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV collected in the year 2011 run from the STAR experiment. Physics implications of our measurements will also be discussed.