Probing hadronic rescattering via resonance production in Au+Au collisions at $\sqrt{s_{NN}} = 19.6$ and 14.6 GeV from STAR BES-II

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Short-lived resonances, like K^{*0}, are useful tools to study particle production mechanisms and the properties of the hadronic phase at the late stage of heavy-ion collisions. Properties of the resonances are expected to be modified due to the interaction of their decay daughters with the hadronic medium via the rescattering and regeneration processes. The particle yield ratios ($K^{*0}/K, \phi/K^{*0}$) can provide information about the interplay between these in-medium effects. Recently, the STAR experiment at RHIC has accumulated high-statistics data samples of Au+Au collisions with enhanced detector capabilities and a wider pseudorapidity coverage during the BES-II program, which also help extend resonance measurements.

We will report on the measurement of the production of K^{*0} resonances in Au+Au collisions at $\sqrt{s_{NN}} = 19.6$ and 14.6 GeV. Results include transverse momentum (p_T) spectra, mean transverse momenta and the integrated yield as a function of rapidity and charged particle multiplicity. The $\langle p_T \rangle$ of K^{*0} will be compared with those of other hadrons. The resonance to non-resonance ratios (K^{*0}/K) will be shown as a function of centrality to study the rescattering/regeneration effects. An estimate of the lower limit of the hadronic phase lifetime will be shown as a function of centrality, and compared to previous RHIC and LHC results.