



Contribution ID: 649

Type: **Poster**

Variation in the K^* meson abundance during the hadronic stage in heavy ion collisions

Tuesday, 29 September 2015 16:30 (2 hours)

We investigate the variation of the K^* meson abundance in heavy ion collisions by focusing on the hadronic effects on the K^* meson abundance. We evaluate the absorption cross section of the K^* meson as well as that of kaon in the hadronic matter, and further investigate the variation in the meson abundances for both particles during the hadronic stage of heavy ion collisions. We show that the interplay between the interaction of the K^* meson with light mesons in the hadronic medium and that of the kaon determines the final yield difference of the statistical hadronization model to the experimental measurements. For the central Au+Au collision at $\sqrt{s_{NN}} = 200$ GeV, we find that the K^*/K yield ratio at chemical freeze-out decreases by 32% during the expansion of the hadronic matter, resulting in the final ratio comparable to STAR measurements of 0.23 ± 0.05 .

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Session Classification: Poster Session

Track Classification: Open Heavy Flavors and Strangeness