QUARK MATTER 2015
Sep. 27 – Oct. 3, 2015 Kobe, Japan

Contribution ID: **408** Type: **Poster**

Λ_c^+ baryon production in Au+Au collisions at $\sqrt{s_{NN}}$ = 200 GeV

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

Baryon/meson ratios (p/π, Λ/K_s^0) are observed to be significantly enhanced in central heavy-ion collisions compared with peripheral heavy-ion collisions and p+p collisions at RHIC and LHC. Several model calculations
suggest that coalescence hadronization between charm quarks and light quarks will also lead to an enhancement in the Λ_c/D^0 ratio. Therefore, it is of great
interest to study the Λ_c baryon production to further understand the hadronization scheme in the charm sector and constrain total charm yield in heavy-ion collisions. The possible Λ_c/D^0 enhancement in heavy-ion collisions will introduce additional suppression for charm decay electrons due to smaller semi-leptonic decay branching ratios of Λ_c, which could lead to a different interpretation of the heavy flavor decay electron results.

Λ_c baryons have an extremely small lifetime ($c\tau \sim 60$ μm) and have not been measured in heavy-ion collisions yet. The newly installed STAR Heavy Flavor Tracker (HFT) has shown high efficiency and a superior pointing resolution that facilitate the reconstruction of hadronic decays in
heavy-ion collisions. In 2014 run, STAR has collected 1.2 B events of minimum bias Au+Au collisions $\sqrt{s_{NN}}$ = 200 GeV.

In this poster, we will discuss the feasibility of Λ_c measurement with the HFT in Au+Au collisions. We will report reconstruction of Λ_c baryons via hadronic decays, including decay channels through the involvement of various intermediate resonance states using 2014 Au+Au data at $\sqrt{s_{NN}}$ = 200 GeV. In addition, we will discuss the improvement on Λ_c reconstruction using the HFT with reduced material that is taking data in 2015 (p+p, p+A) and is planned for future 2016 (Au+Au) collisions.

On behalf of collaboration:

STAR

Primary author: SIMKO, Miroslav (Nuclear Physics Institute of the CAS (CZ))

Presenter: SIMKO, Miroslav (Nuclear Physics Institute of the CAS (CZ))

Session Classification: Poster Session

Track Classification: Open Heavy Flavors and Strangeness