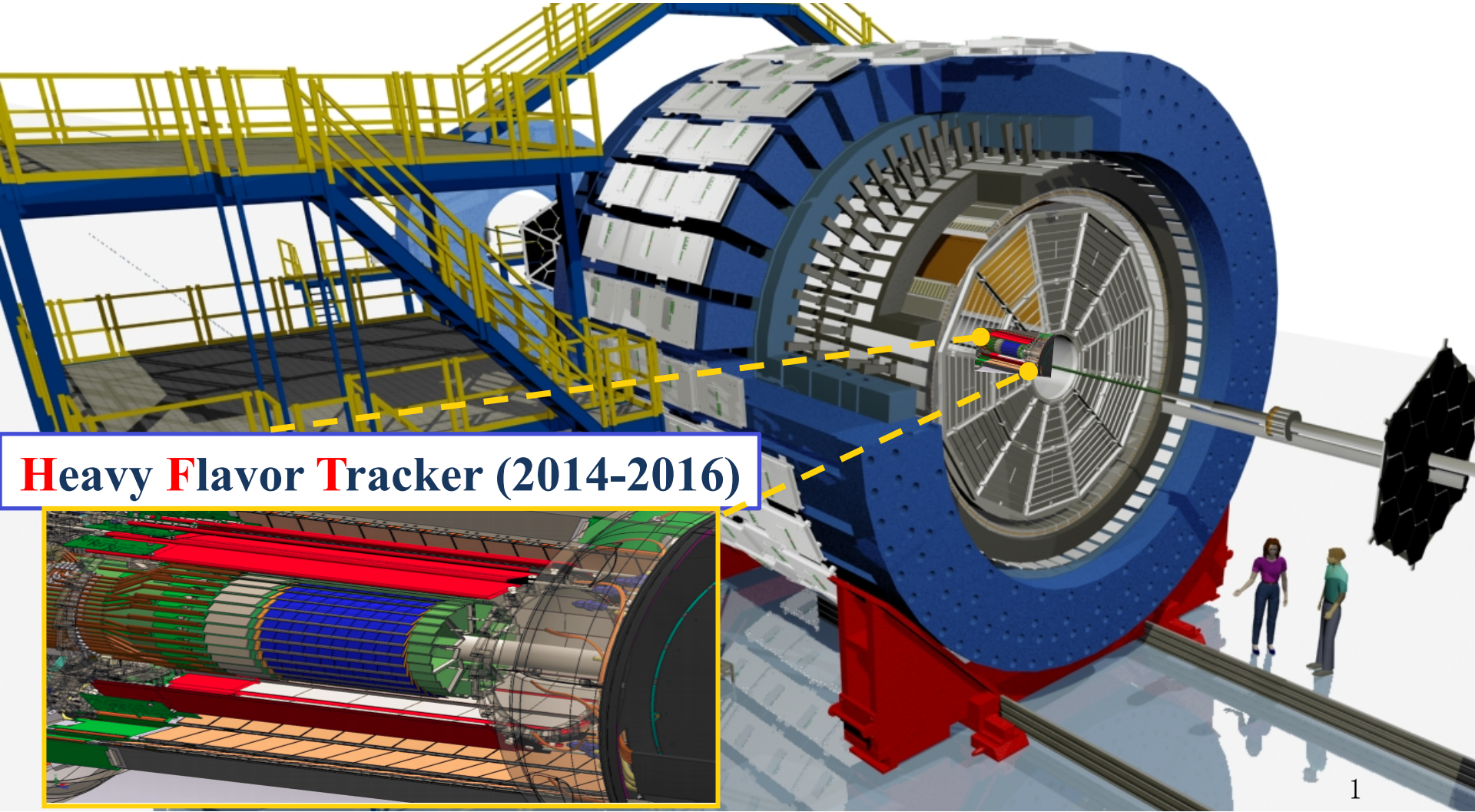
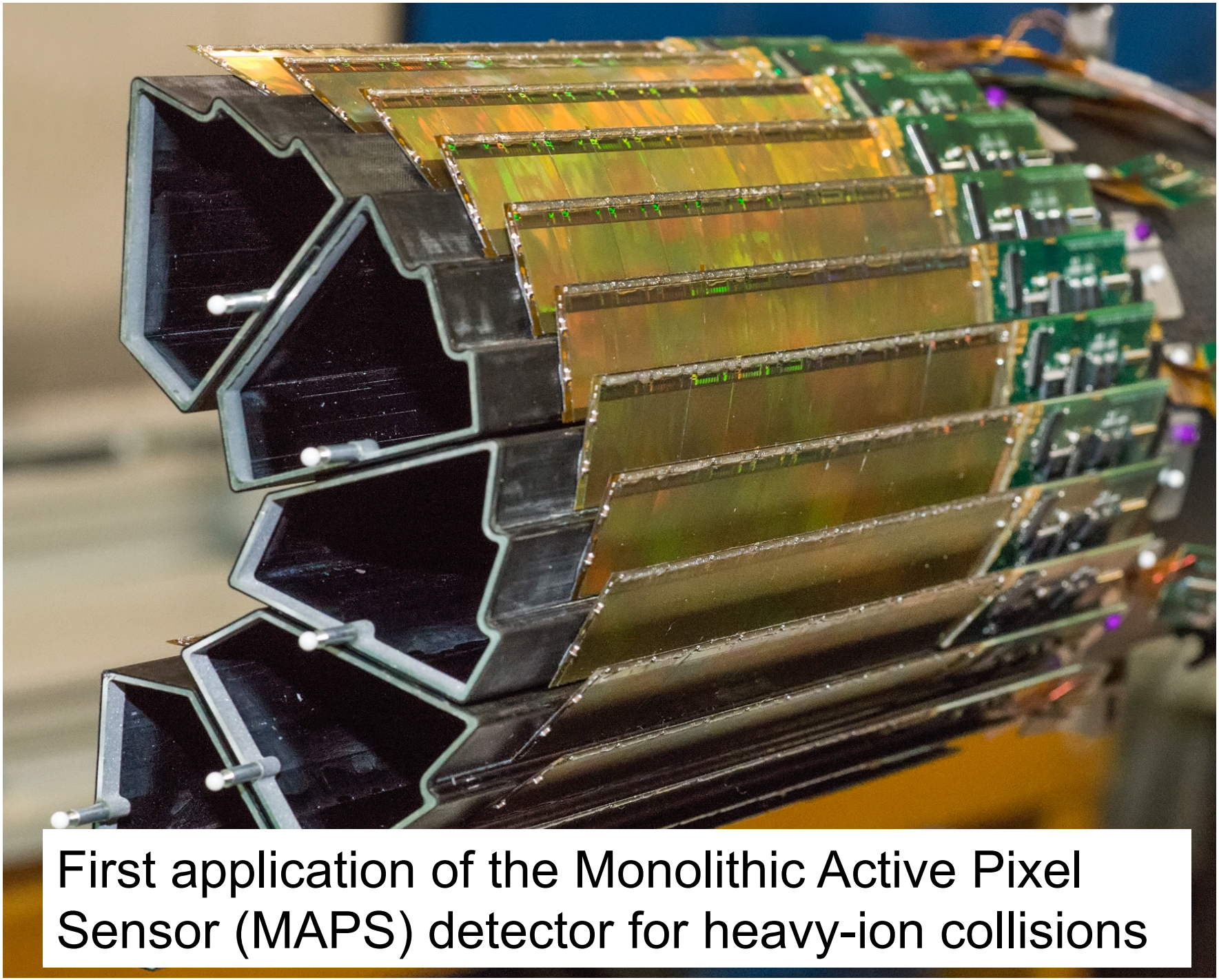
Λ_c Production in Au+Au Collisions at $\sqrt{s_{NN}}$ = 200 GeV at STAR

Guannan Xie for the STAR Collaboration

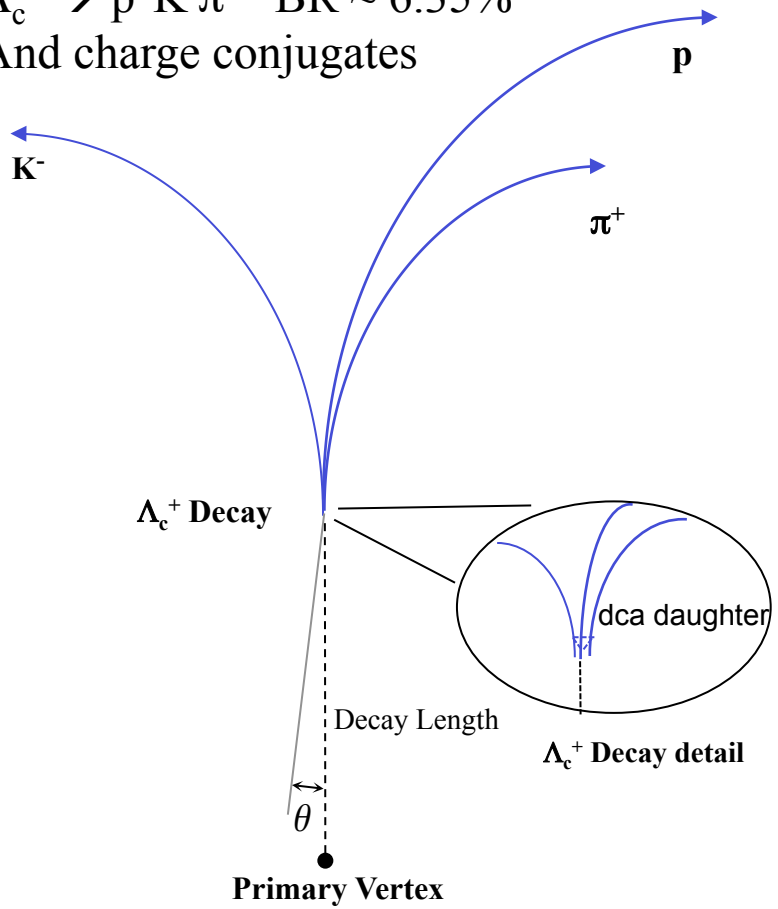




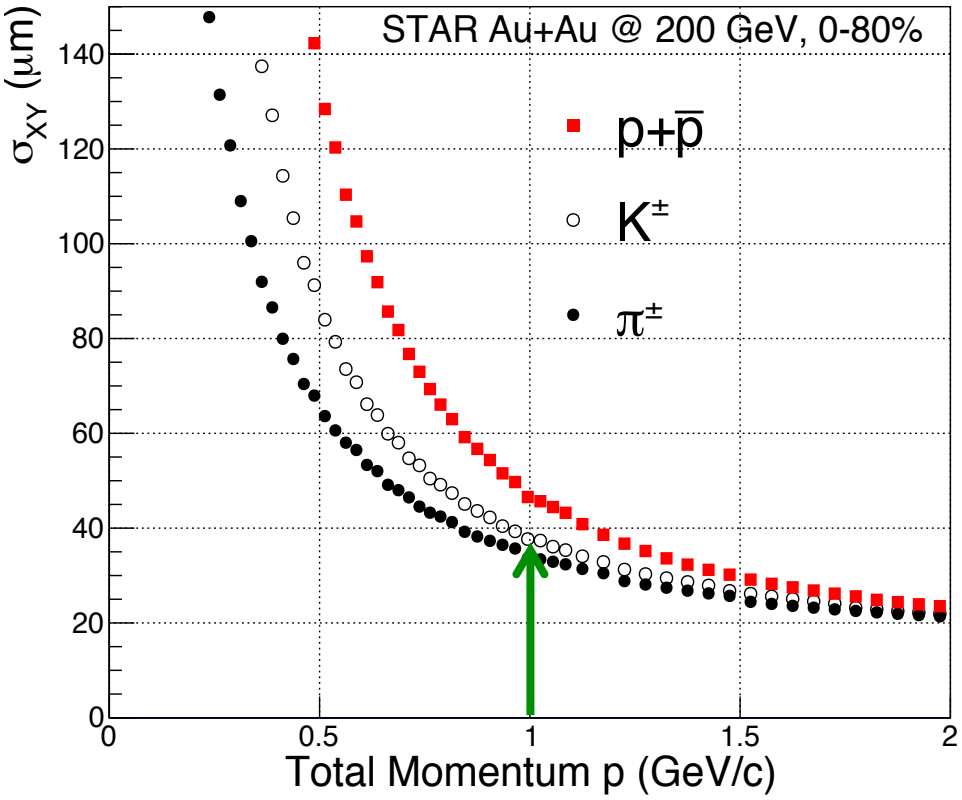
First application of the Monolithic Active Pixel Sensor (MAPS) detector for heavy-ion collisions

HFT Performance

$\Lambda_c^+ \rightarrow p^+K^-\pi^+$ BR ~ 6.35%
And charge conjugates



Distance of Closest Approach resolution achieved in Run 2014.

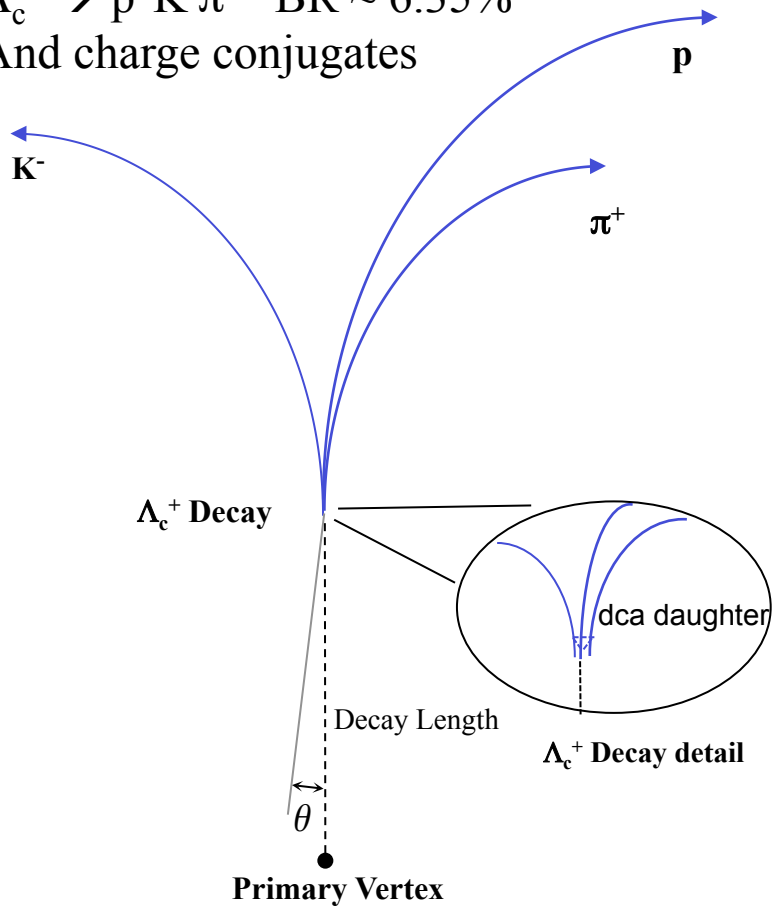


Λ_c^+ (udc), m ~ 2286 MeV/c^2, $c\tau$ ~ 60 μm
D^0 ($c\bar{u}$), m ~ 1864 MeV/c^2, $c\tau$ ~ 123 μm

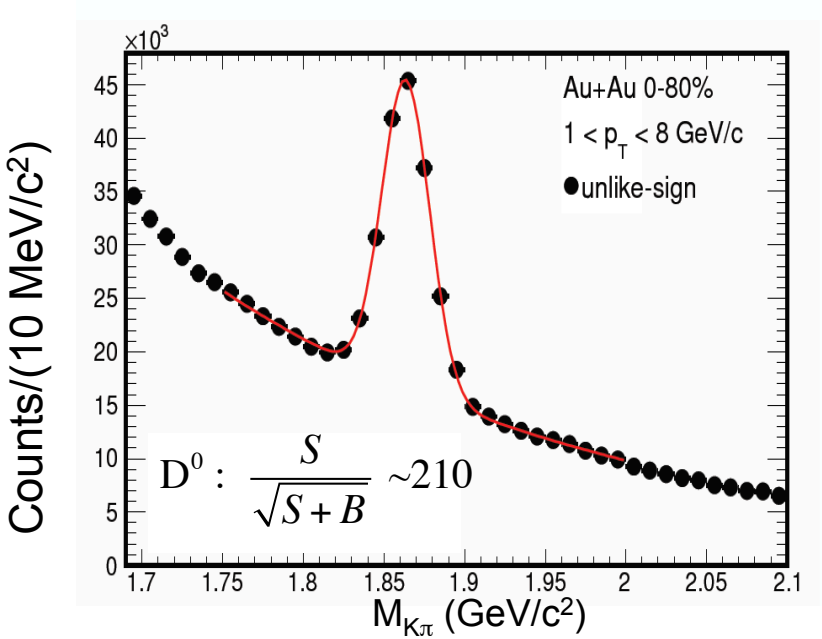
σ_{XY} < 40μm for kaons at p>1 GeV/c

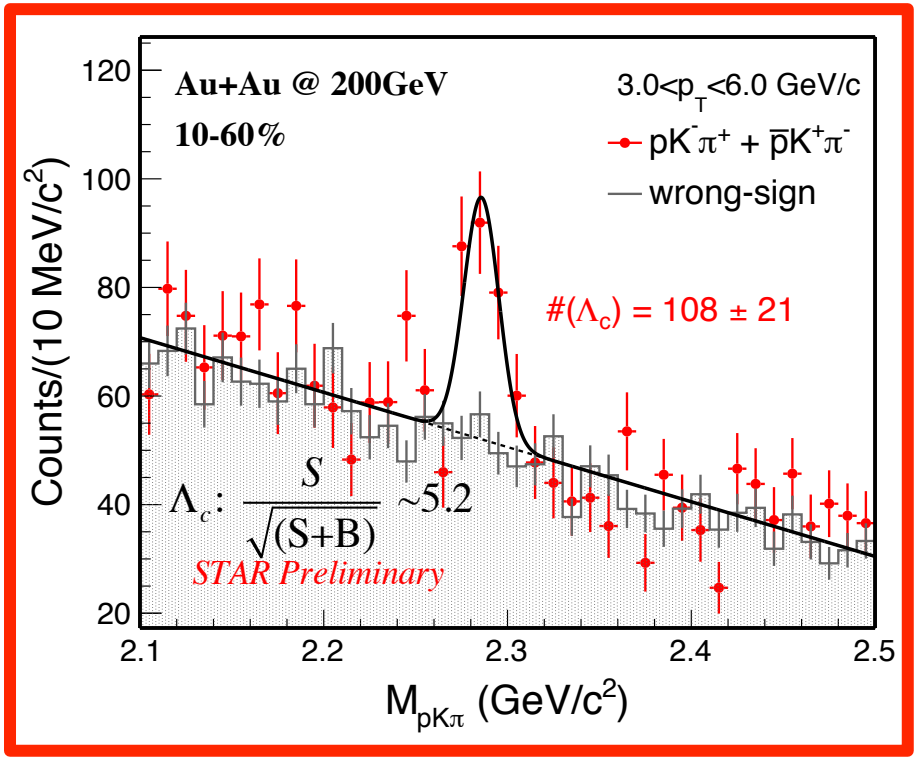
D^0 and Λ_c Signals

$\Lambda_c^+ \rightarrow p^+K^-\pi^+$ BR ~ 6.35%
And charge conjugates



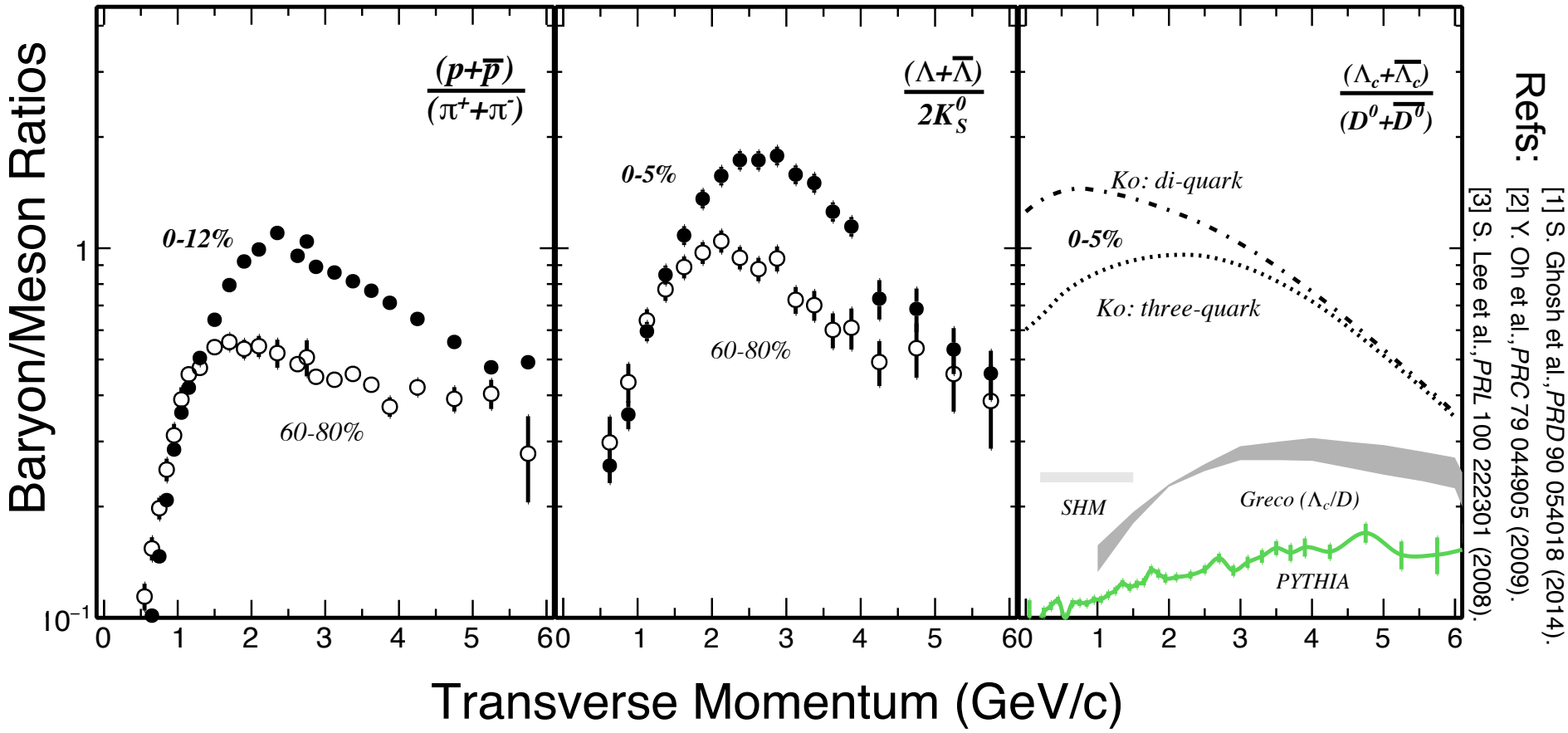
First measurement of Λ_c in heavy-ion collisions





Guannan Xie

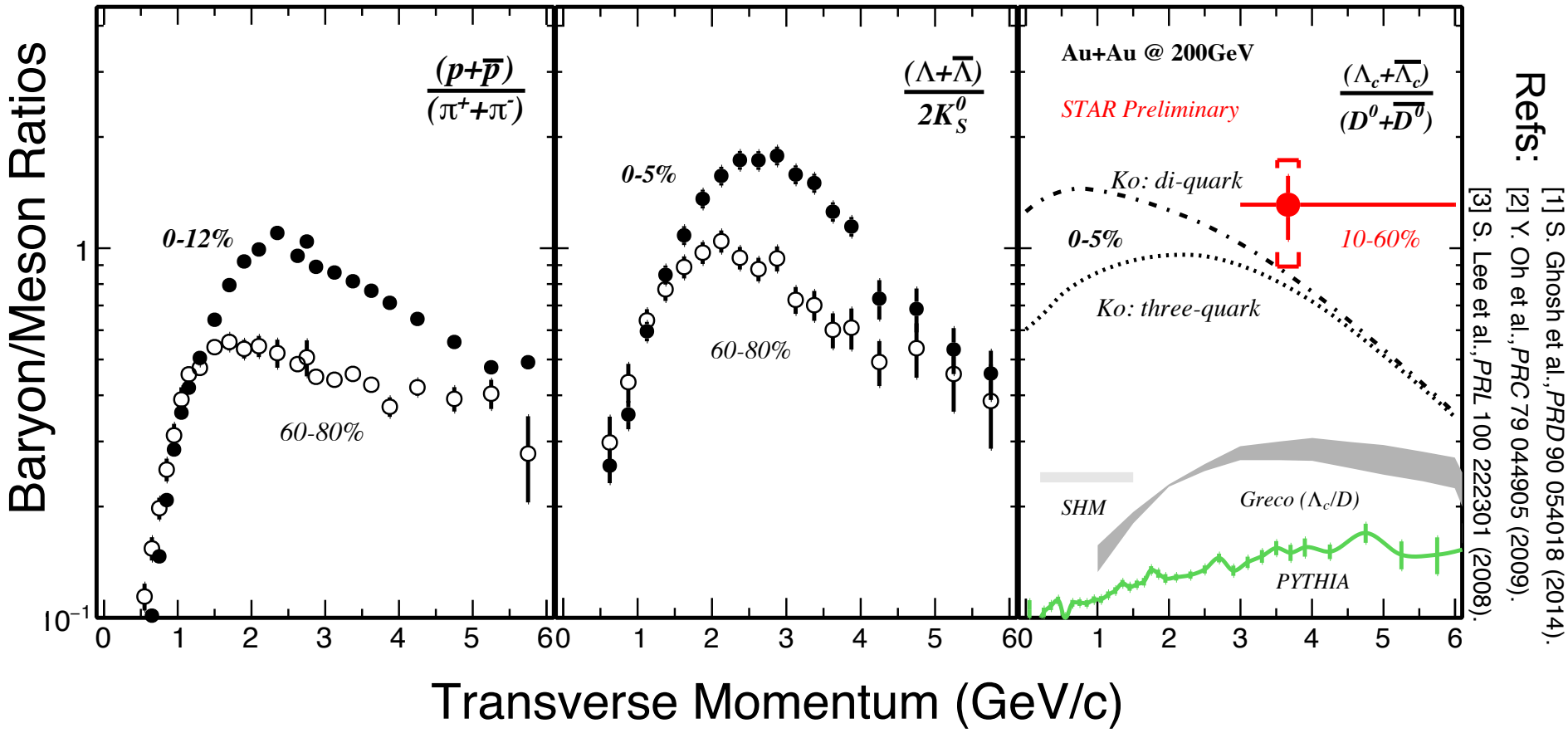
Baryon to Meson Ratio



Refs:
[1] S. Ghosh et al.,*PRD* 90 054018 (2014).
[2] Y. Oh et al.,*PRC* 79 044905 (2009).
[3] S. Lee et al.,*PRL* 100 222301 (2008).

- Coalescence models can well describe this enhancement in light flavors

Baryon to Meson Ratio



- Enhancement of Λ_c/D^0 ratio compared to PYTHIA prediction
- The Λ_c/D^0 ratio is similar to that of light-flavor hadrons
- Coalescence model with thermalized charm quarks consistent with our data

Outlook: In run 2016, collected 2 billion Au+Au events. We will study R_{cp} for the ratio of Λ_c/D^0.