

Charge Asymmetry Dependence of Proton Elliptic Flow in 200 GeV Au+Au (Update)

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Outline

- Analysis Summary
- Results
- Outlook

Analysis Summary

- Physics motivation: search for CMW
- CMW signal already observed in pions and kaons
- Observable (r) is the charge asymmetry (A_{ch}) of the difference in elliptic flow (Δv_2) between protons and anti-protons:

$$\Delta v_2(A_{ch}) = v_2(p^-) - v_2(p^+) = c + r A_{ch}$$

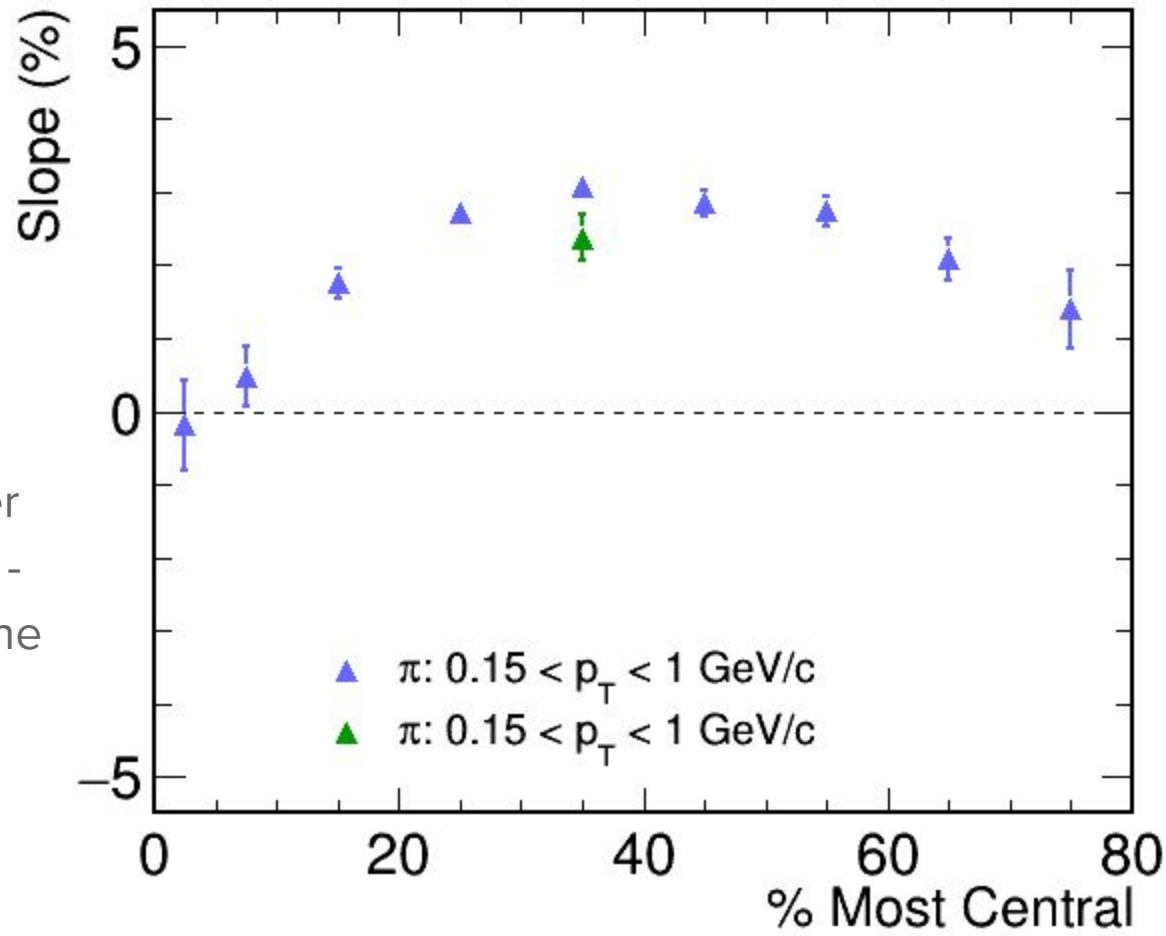
$$v_n = \langle \cos [n(\phi - \Psi_{RP})] \rangle$$

$$A_{ch} = \frac{N_+ - N_-}{N_+ + N_-}$$

Analysis Summary: Cuts

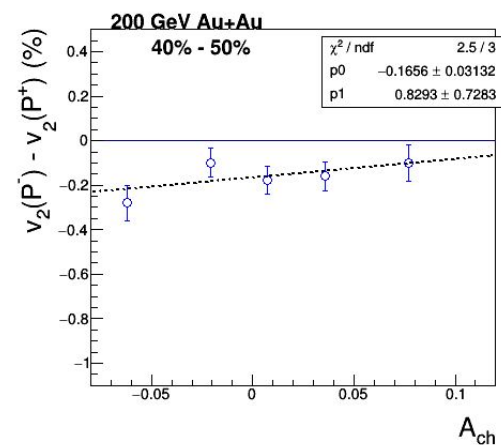
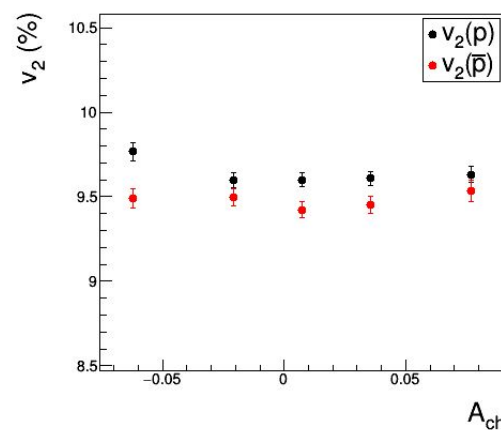
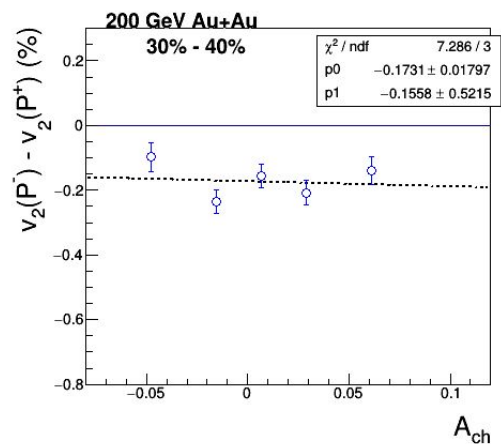
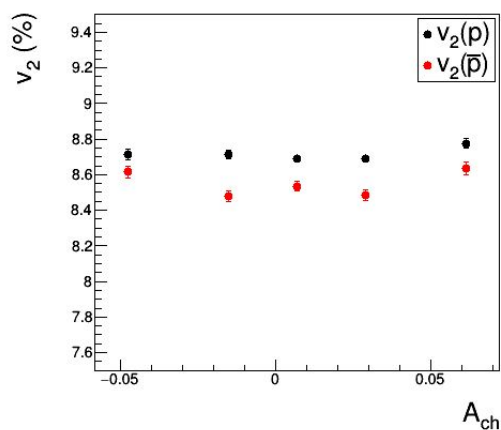
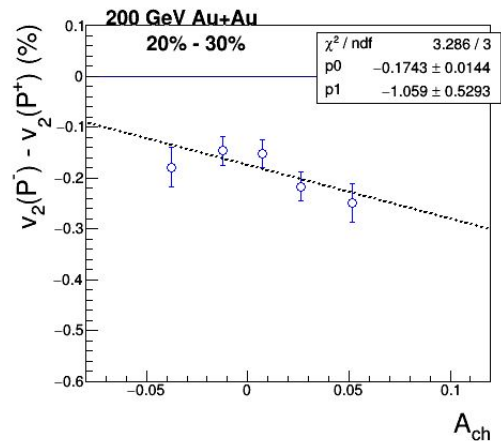
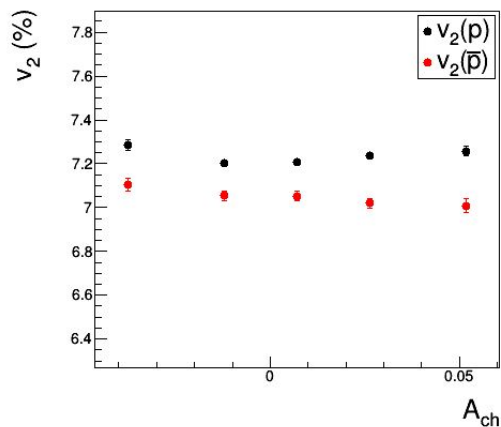
Event		Protons	
Vertex (cm)	(-30,30)	N dE/dx	> 10
Particles		Mass ² (GeV ² /c ⁴)	(0.8,1)
Dca (cm)	< 2	P _T (GeV/c)	(0.4,2)
Eta	(-1,1)	nσ of proton	(-2,2)
		ToF Flag	> 0
		ToF β	> 0
		ToF YLocal (cm)	(-1.8,1.8)

Pion Check



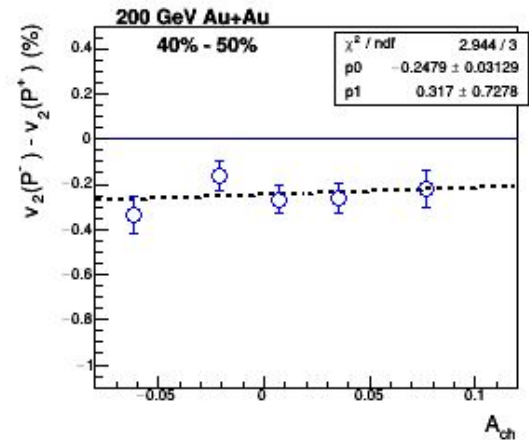
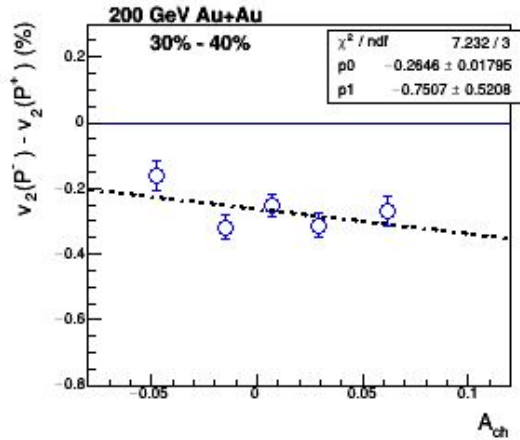
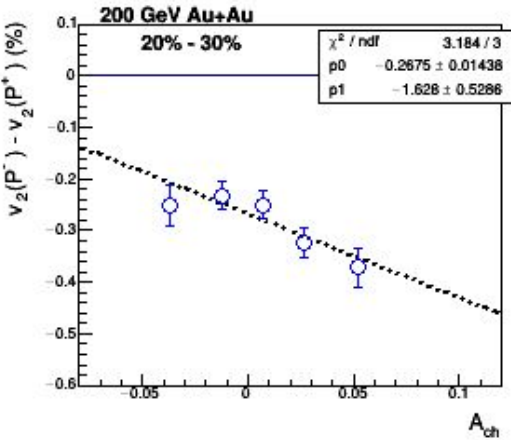
(only ran over one data set - MB5 - and one centrality)

Results



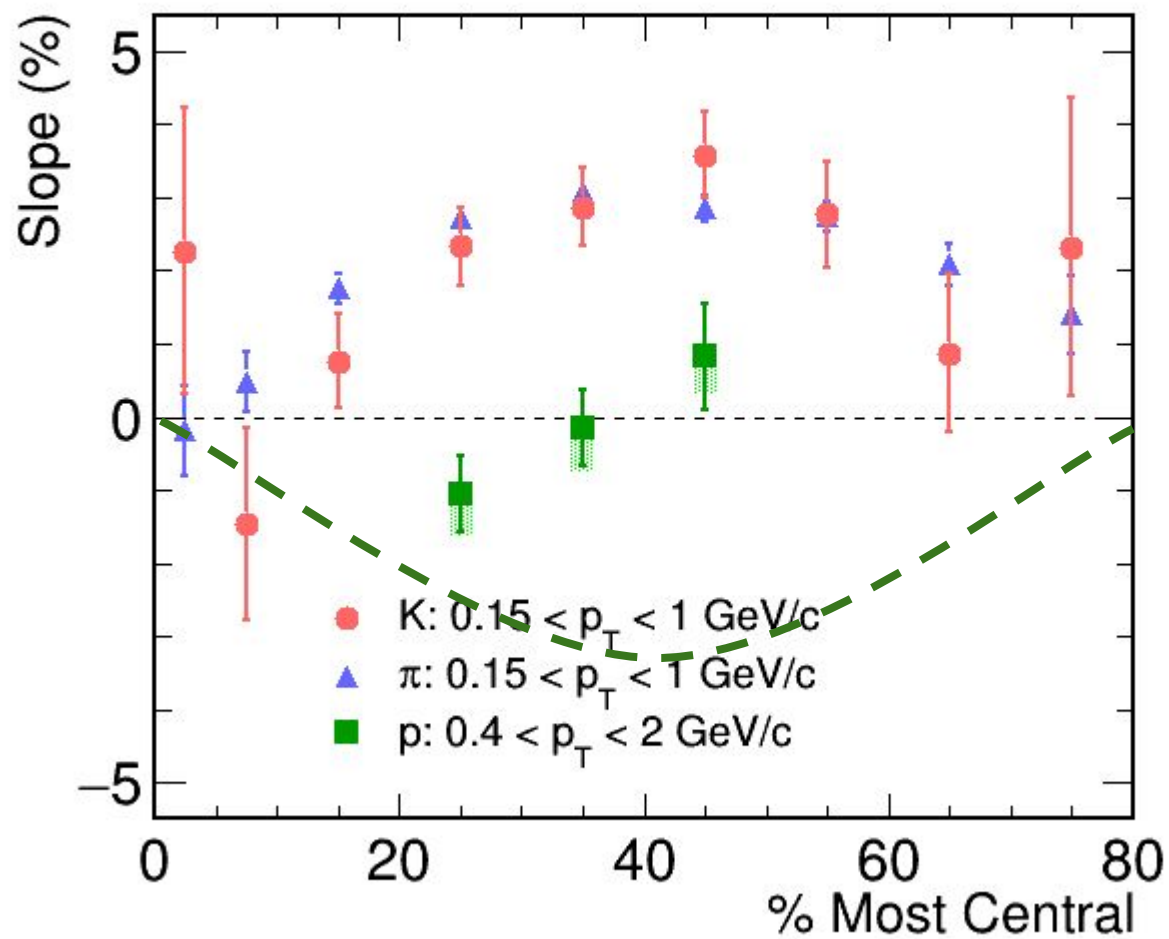
Central
value

Results



Systematics

Results



Outlook

- Finish data points for all centralities
- Prepare presentation for end of REU program
- Prepare poster for Conference Experience for Undergraduates (CEU) at the 2016 DNP Fall meeting