

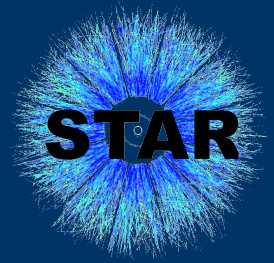
Initial state nuclear effects for jet production measured in 200 GeV d+Au collisions by STAR

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Jets in d+Au collisions



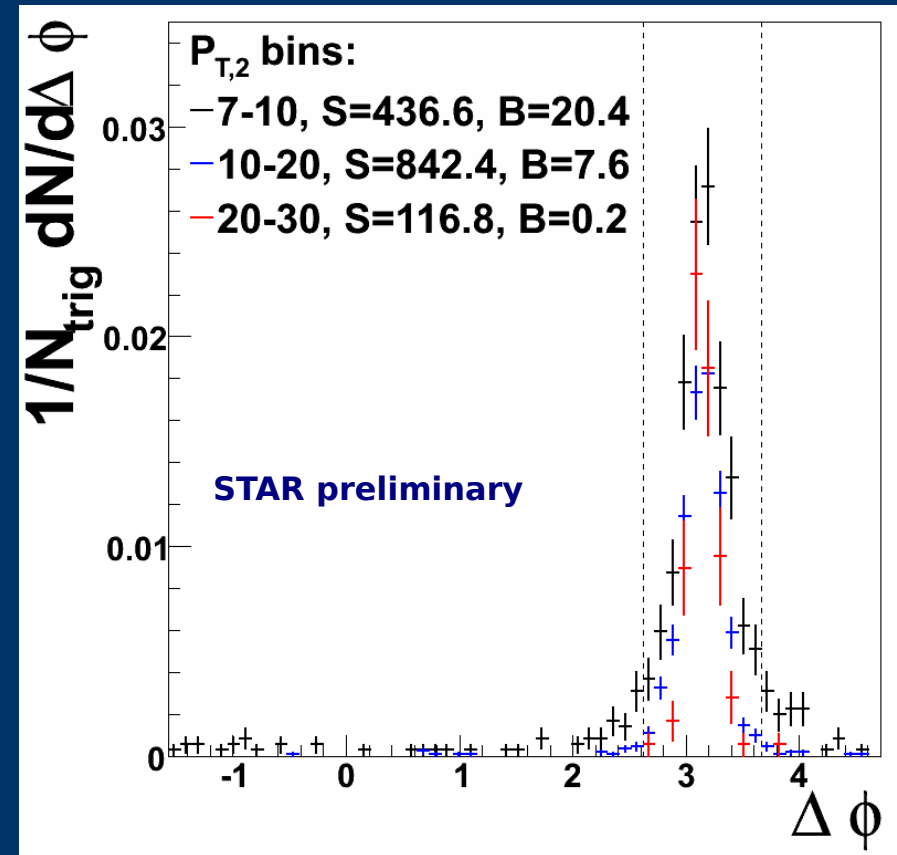
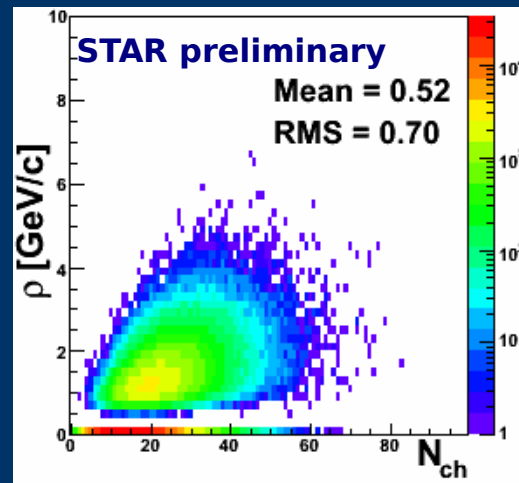
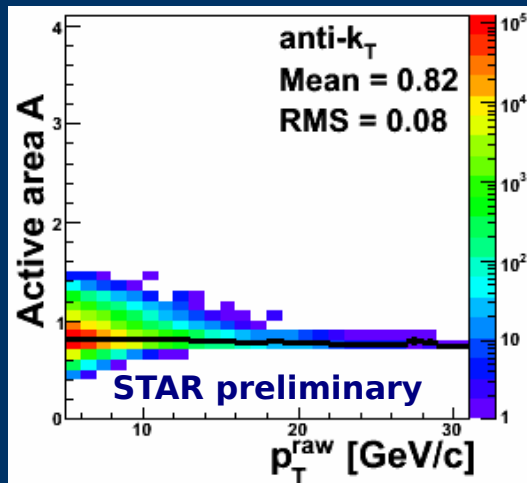
run 8 RHIC data: 20% most central collisions

k_T and anti- k_T recombination algorithms from Fastjet package:

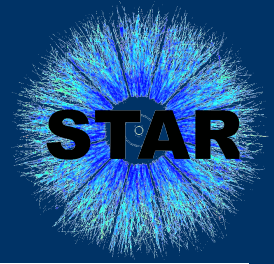
- different sensitivity to background
- resolution par. $R=0.5$ to maximize acceptance for di-jets

background subtraction using jet areas:

- ~ 0.5 GeV / jet
- η dependence of bg negligible for jets in $|\eta| < 0.4$



Measurement of k_T effect

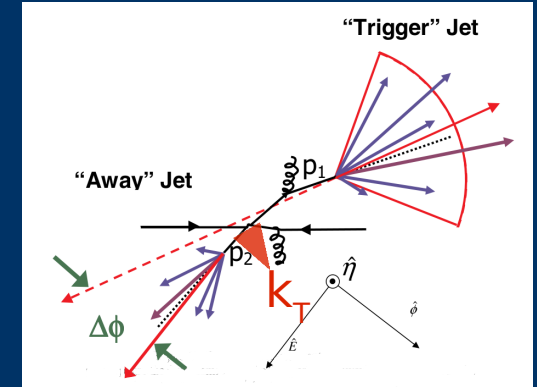


di-jet broadening: ISR + FSR + CNM effects

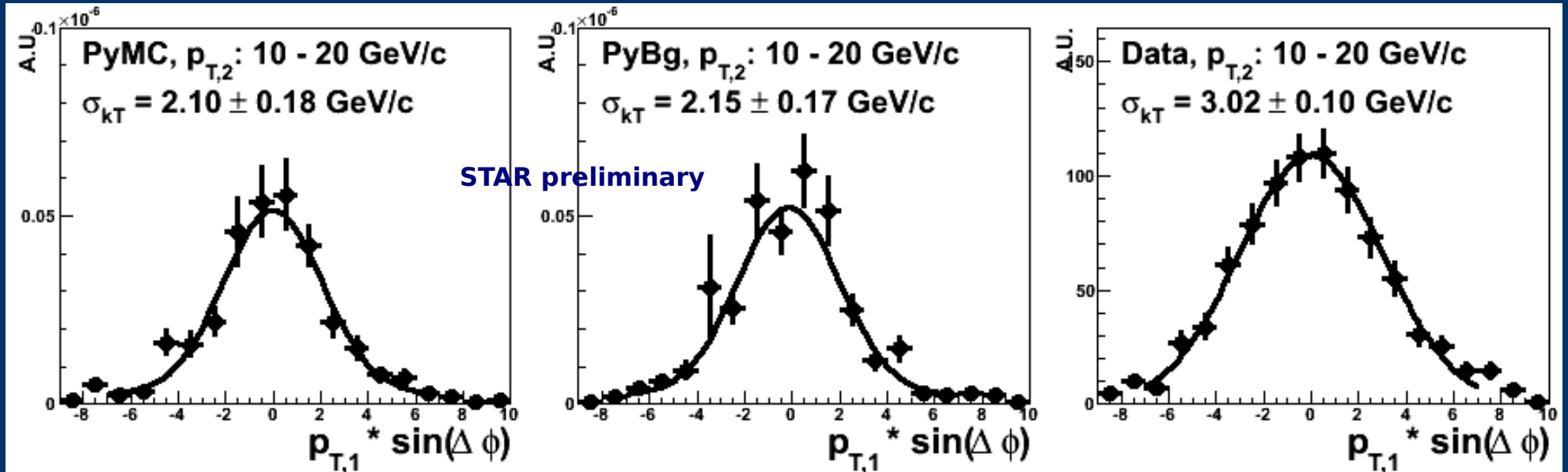
$$k_T = p_T^{\text{jet}} * \sin(\Delta\phi), \text{ Gaussian fit}$$

sensitivity to detector response & background:

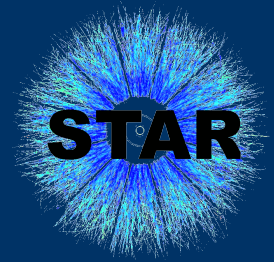
- Pythia simulation (PyMC)
- detector response & dAu background (PyBg)



systematic uncertainty: 8 different results (trigger, p_T cut, jet algo)
detector effect cancel out on average



Conclusion



k_T effect measurement:

- $\sigma(k_T) = 3.0 \pm 0.1$ (stat) ± 0.4 (syst) GeV/c
- STAR run 3 result for p+p: 2.1 ± 0.1 (stat) ± 0.1 (syst) GeV/c
- a hint of nuclear effect

outlook:

- run 8 p+p data
- centrality dependence
- p_T^{jet} dependence (quark/gluon jets)
- other observables: jet p_T spectra, fragmentation functions...

Thanks to all STAR Collaborators!

& see poster #219 for details...