PHENIX Readiness for Heavy Ion Runs

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- PHENIX is ready for taking physics data both for U+U and Cu+Au. In the PHENIX Beam Use Proposal, we have

Species	sqrt(s_NN)	Weeks	Int L dt (|z| <10 cm)	Comments
U+U	193 GeV	1.5	0.03 nb^{-1}	Explore geometry (Run-12)
Cu+Au	200 GeV	5	2.4 nb^{-1}	Control geometry (Run-13)

- In reality, we are going to have (from **Phil Pile's schedule**)
  - 19 April (Thursday), begin 1 week setup for UU (with overnight stores for experiments ~ Sunday night)
  - 26 April (Thursday), begin ***3 week UU physics run***
  - 17 May (Thursday) **end 3 week √s = 193 GeV/n UU run, begin setup for √s = 200 GeV/n CuAu**
  - 19 May (Saturday – my ambitious estimate) begin CuAu physics run
  - 20-25 May: IPAC
  - 25 June (Monday), **end 5.3 week √s = 200 GeV/n CuAu run**, begin cryo warm-up

PHENIX Projected Goals

Species	sqrt(s_NN)	Weeks	Int L dt (|z| <10 cm)	Comments
U+U	193 GeV	3	0.06 nb^{-1}	Explore geometry
Cu+Au	200 GeV	5	2.4 nb^{-1}	Control geometry

Expect better EBIS performance in coming weeks.

Fast Physics Analysis Topics

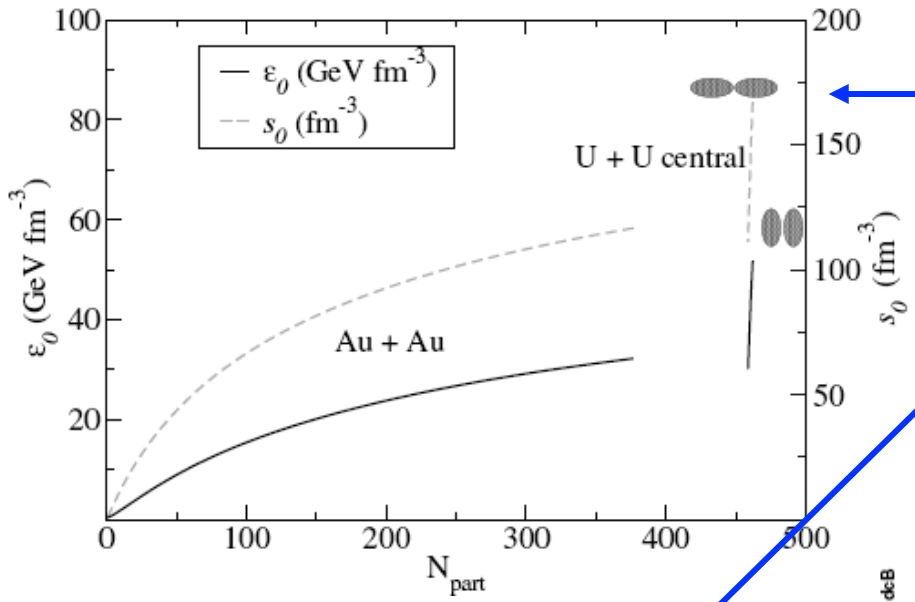
- Higher order harmonics (v_n)
- π^o spectra
- J/ψ measurements
- Multiplicity and E_T study

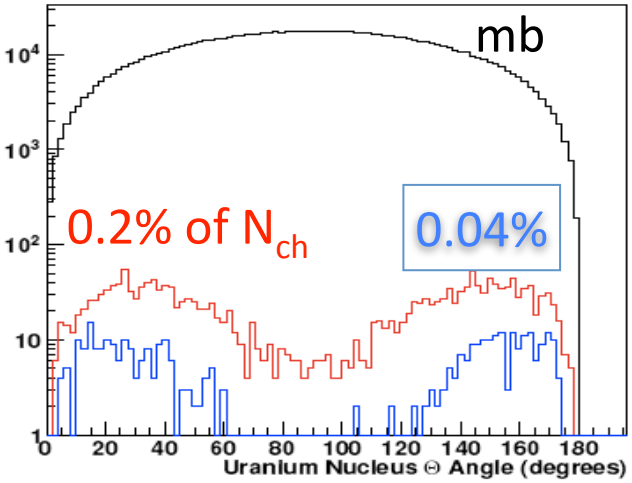
U+U "engineering" Run

Glauber MC simulations show:

Goal: vary ε_0, eccentricity

The problem





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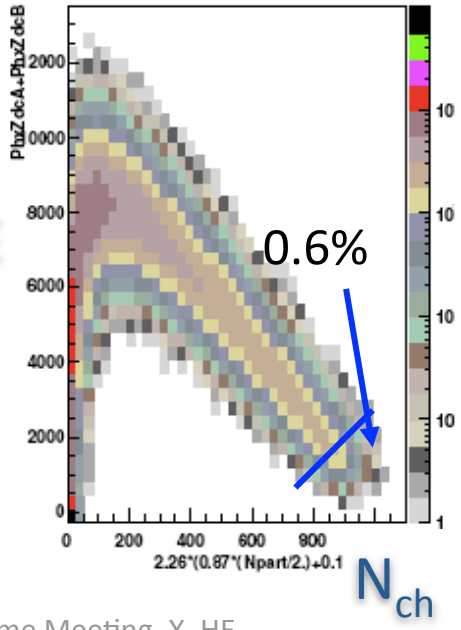
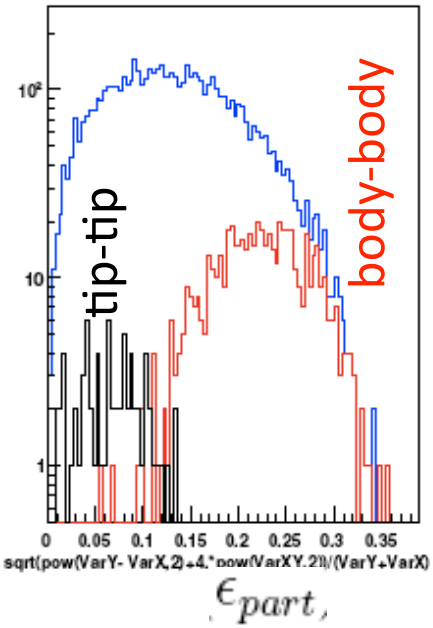




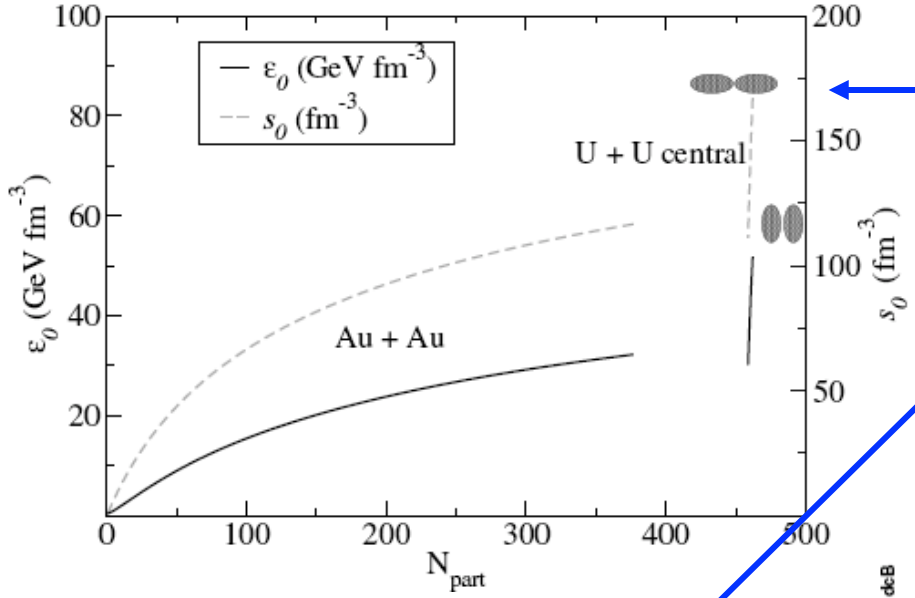
U+U "engineering" Run

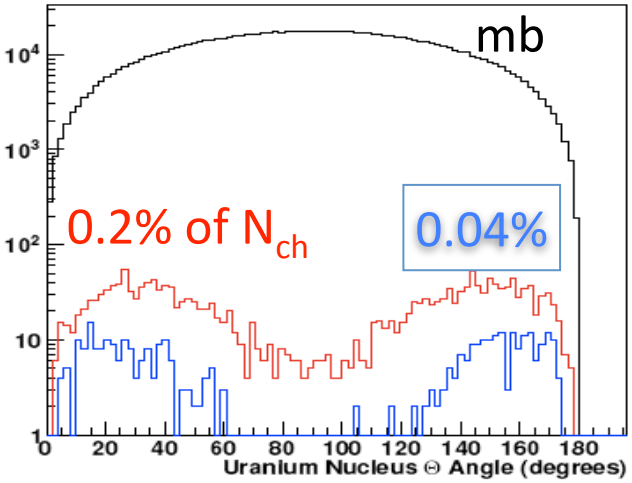
Glauber MC simulations show:

Goal: vary ε_0, eccentricity

The problem

The solution: 200M evt
~ 400k tip-tip events





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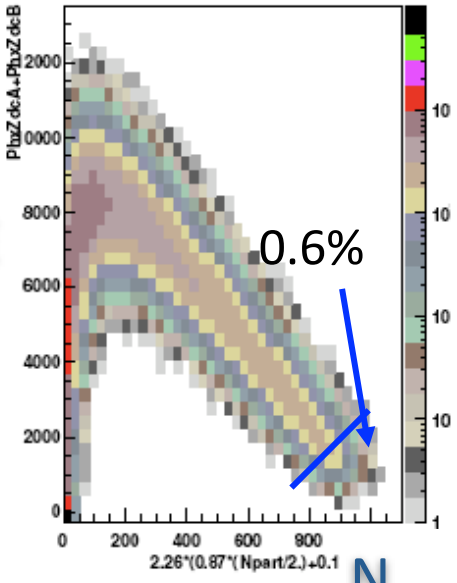
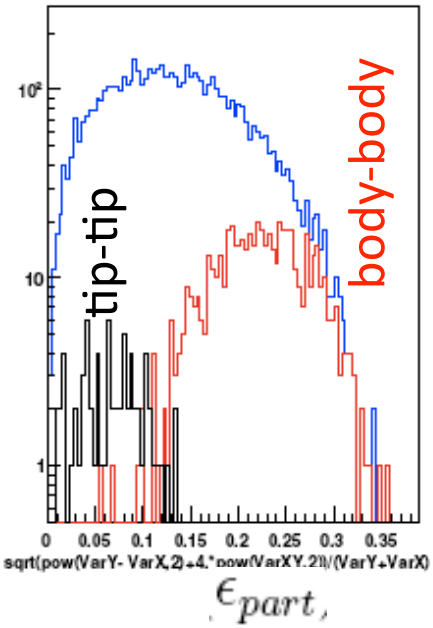
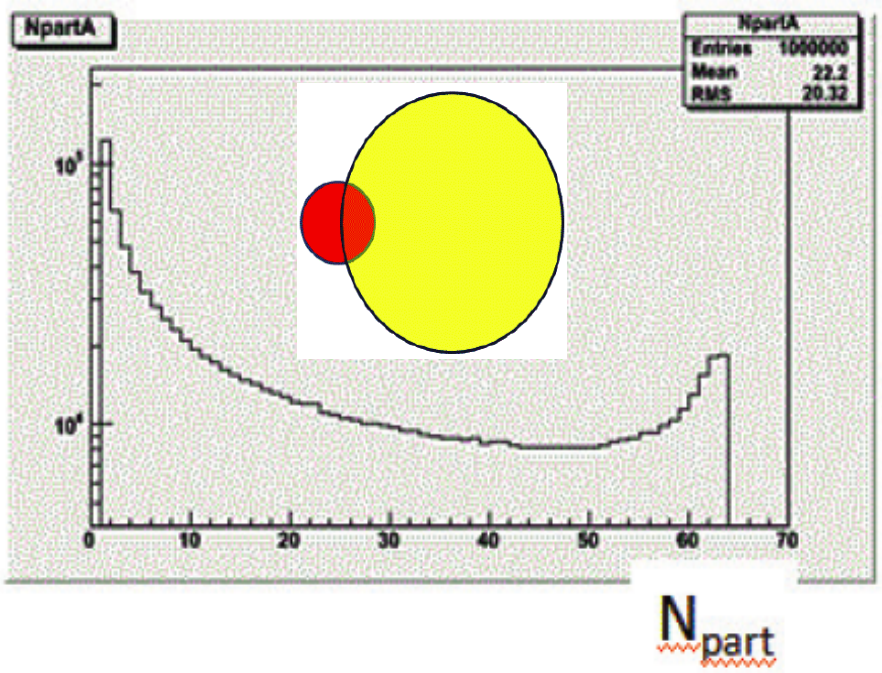
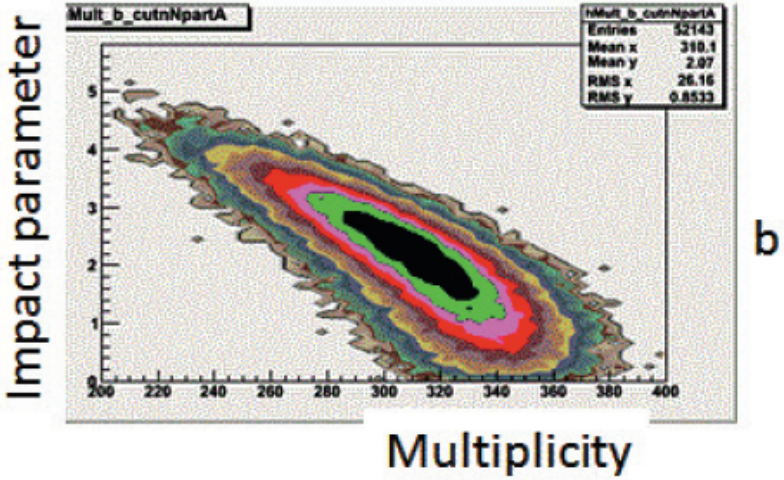




Cu+Au Run

- Cu buried inside Au for most central collisions
  - Minimize effects of the surface on hard probes
  - Select top 3% centrality for this (300M events)
- Eccentricity without left/right symmetry for non-central collisions
  - Non-fluctuation source of odd harmonics





"New" Detectors (VTX/FVTX, MPC) Will Advance Us for New Physics capability

- Heavy flavor measurement (D, B, ψ').
- Better reaction plan determination.

A great opportunity to demonstrate the flexibility of the RHIC facility !!!