

# PHOBOS Analysis Status

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# PHOBOS Overview

- PHOBOS completed data taking in 2005.
- Most PHOBOS collaborators have shifted their primary focus to CMS, ATLAS, PHENIX or STAR.
- PHOBOS analysis effort continues to exploit unique features of the detector (extensive  $\eta$  coverage).
  - E.g. “The ridge” extending to  $\Delta\eta=-4$  was a big hit at QM2008
  - 8 PhD students still working on theses/papers
    - Out of a total of 23 PHOBOS students

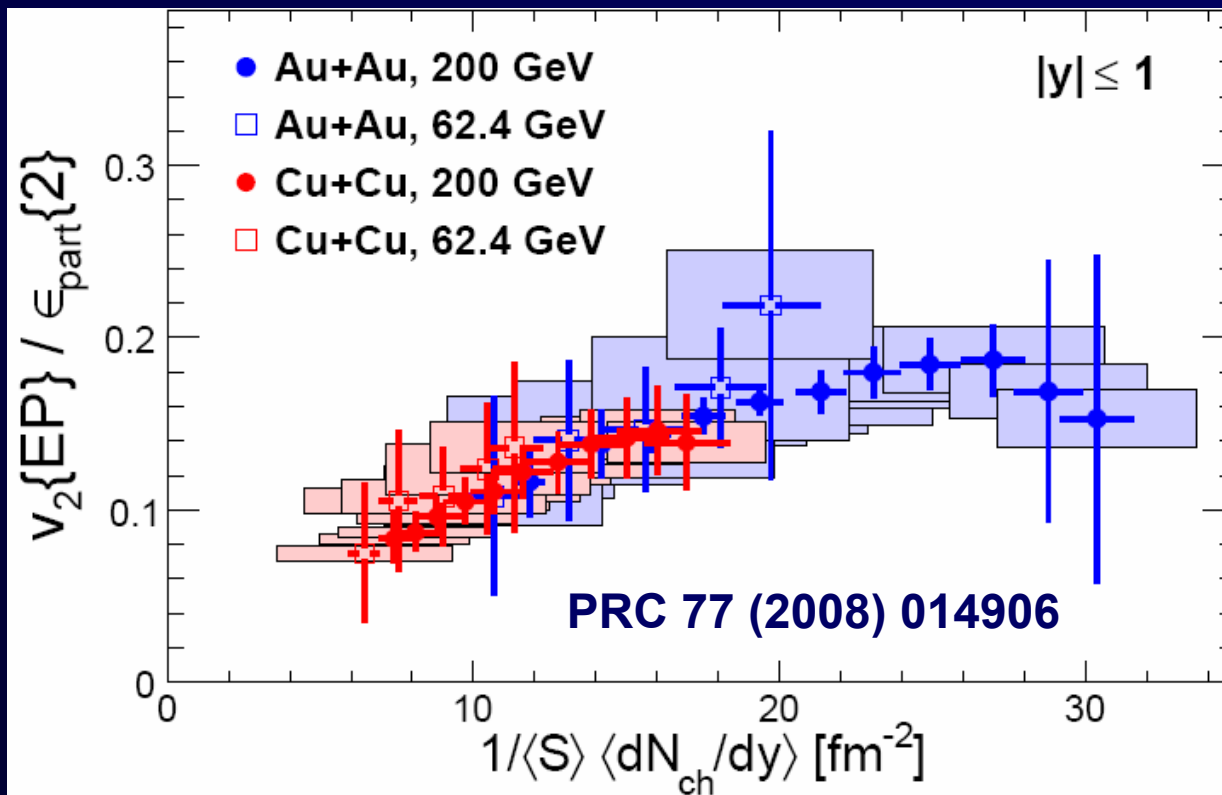
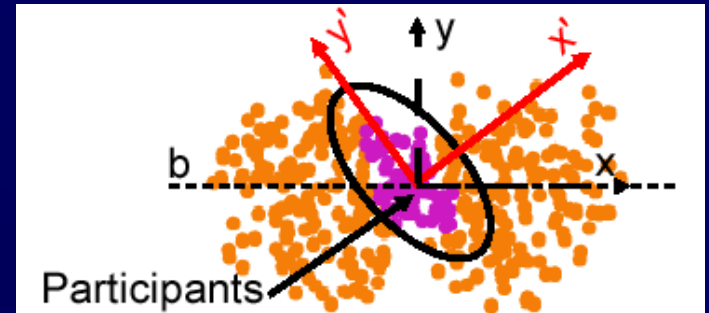
# PHOBOS Papers (since July 2007)

**3 PHOBOS papers submitted and/or published since July 1, 2007  
& 1 theory paper (w/ U. Heinz)**

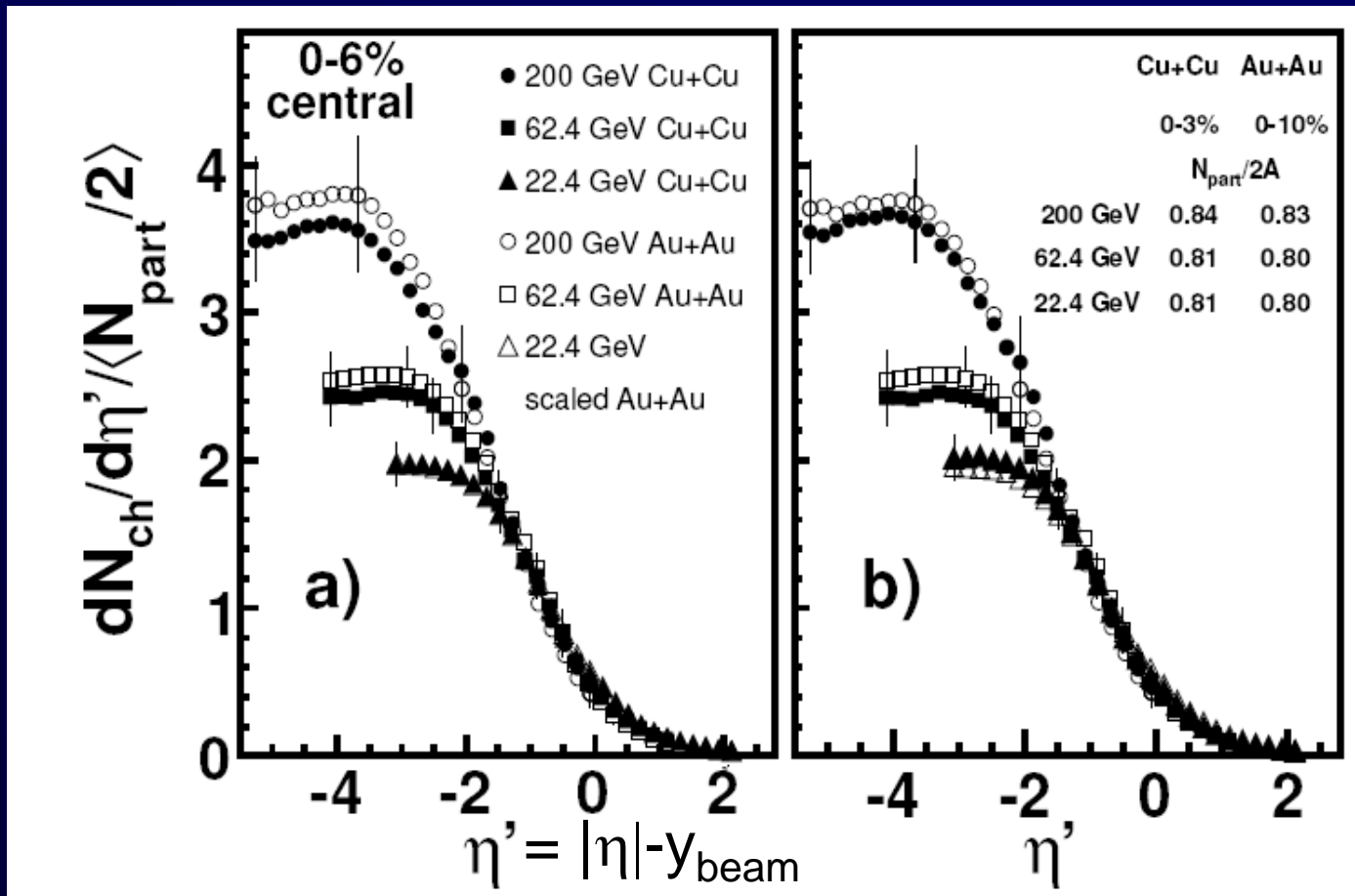
- **Submitted to PRL, arXiv:nucl-ex/0702036,**
  - Elliptic flow fluctuations in Au+Au collisions at  $\sqrt{s_{NN}} = 200$  GeV
- **Submitted to PRL, arXiv:0709.4008[nucl-ex]**
  - System Size, Energy and Centrality Dependence of Pseudorapidity Distributions of Charged Particles in Relativistic Heavy Ion Collisions
- **PRC 77 (2008) 014906, arXiv:0711.3724 [nucl-ex]** (w/ U.Heinz)
  - The Importance of Correlations and Fluctuations on the Initial Source Eccentricity in High-Energy Nucleus-Nucleus Collisions
- **PRC (2008) in press, arXiv:0802.1695 [nucl-ex]**
  - Identified Charged Antiparticle to Particle Ratios near Midrapidity in Cu+Cu Collisions at  $\sqrt{s_{NN}}=62.4$  and 200 GeV

# Unified picture of flow in Au+Au/Cu+Cu

- Flow essential for understanding of QGP fluid dynamics (viscosity etc.)
- Correct event-by-event tilted geometry essential for understanding of flow!



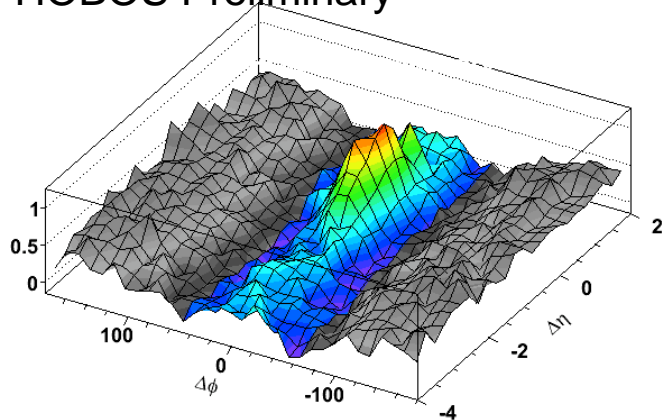
# Essential input to 3d hydrodynamics



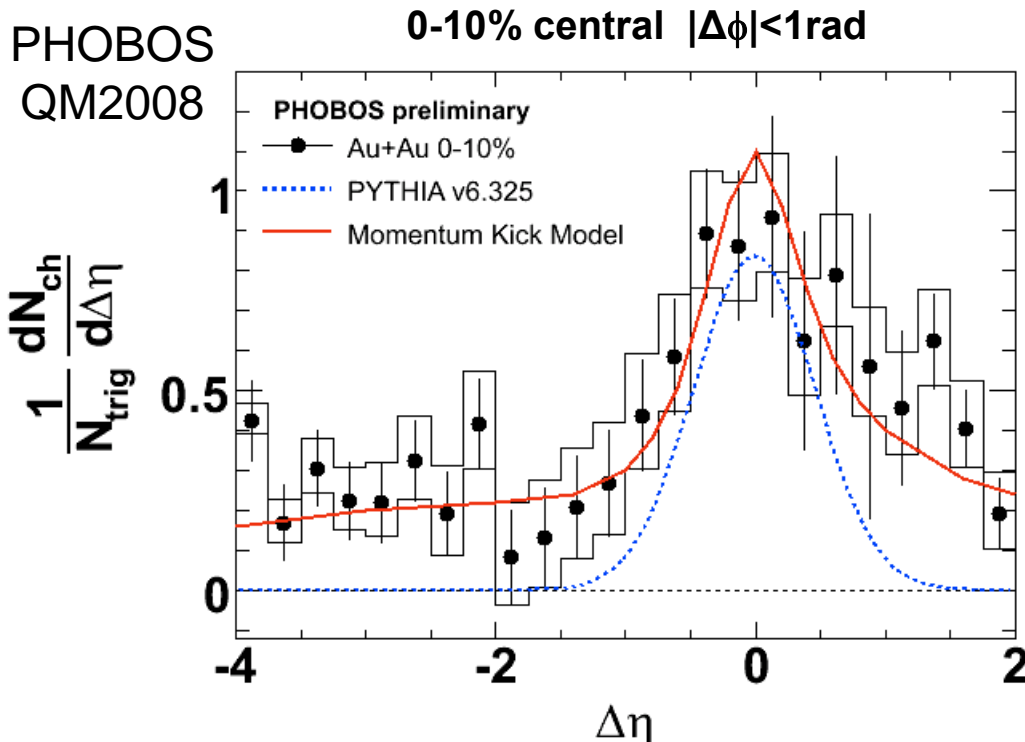
nucl-ex/0709.4008 submitted to PRL (2008)

# Future paper: “ridge” extent in $\eta$

PHOBOS Preliminary



Trigger on  $p_T > 2.5$  GeV  
Plot ALL other charged particles



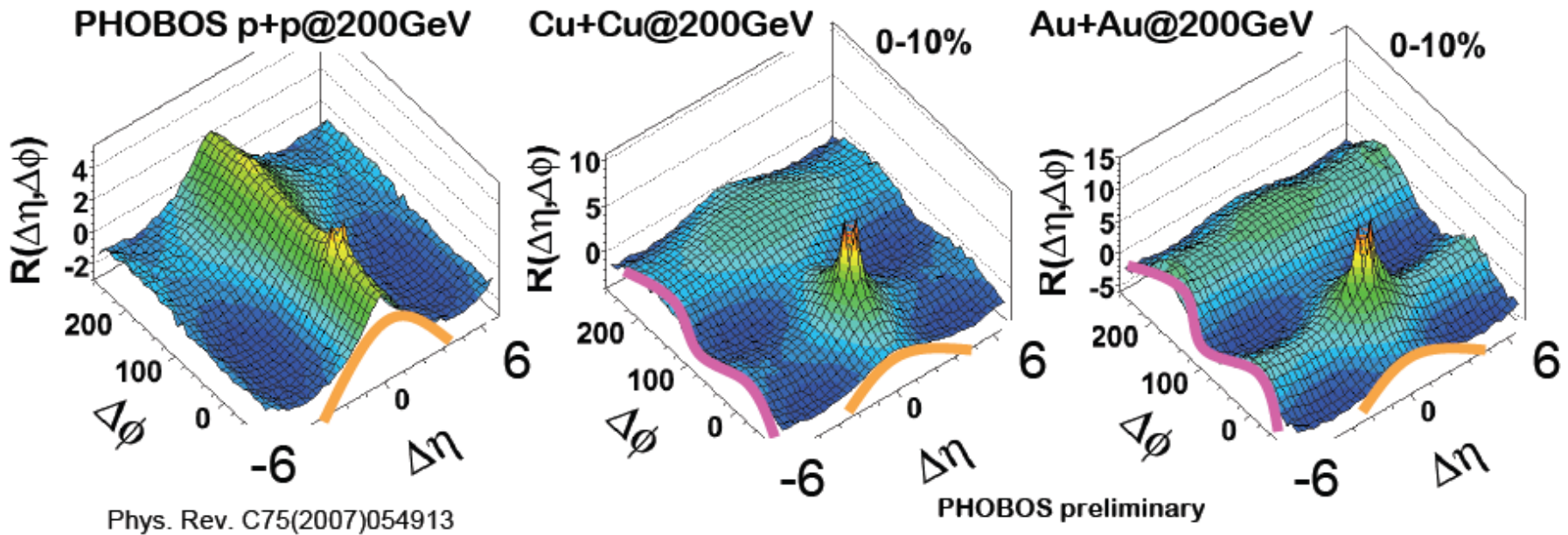
Essential for understanding the parton QGP interaction.

Wenger et al. (PHOBOS) Quark Matter 2008

Model from C.Y. Wong PRC76, 054908 (2007)  
& C.Y. Wong, private communication

# Future paper: Correlations over a large phase space

Correlate ALL charged particles (mostly soft)



Li et al. (PHOBOS) Quark Matter 2008

# PHOBOS Plans

- The collaboration has 8 PhD students and plans for about 11 more papers.
  - “Multiplicity” papers
    - CuCu  $dN/d\eta$  @ midrapidity paper
    - PHOBOS  $dN/d\eta$  long paper
    - PHOBOS nuclear fragments paper at high  $\eta$
    - Proton-proton  $dN/d\eta$
  - Elliptic flow
    - CuCu  $v_2(p_T)$  paper
    - PHOBOS flow long paper
  - **Large-acceptance** two-particle correlations ( $\Delta\eta, \Delta\phi$ )
    - Measuring Pseudorapidity extent of “ridge”
  - & 4 others
- PHOBOS detector fully decommissioned.