

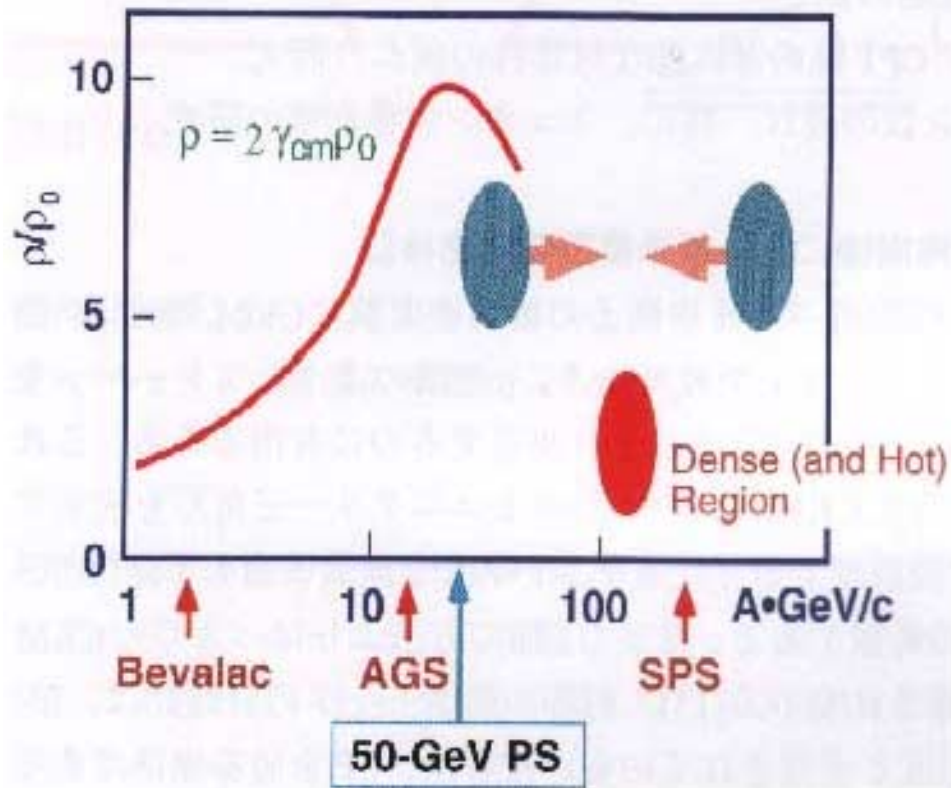
Flow measurements and application to the JHF energies

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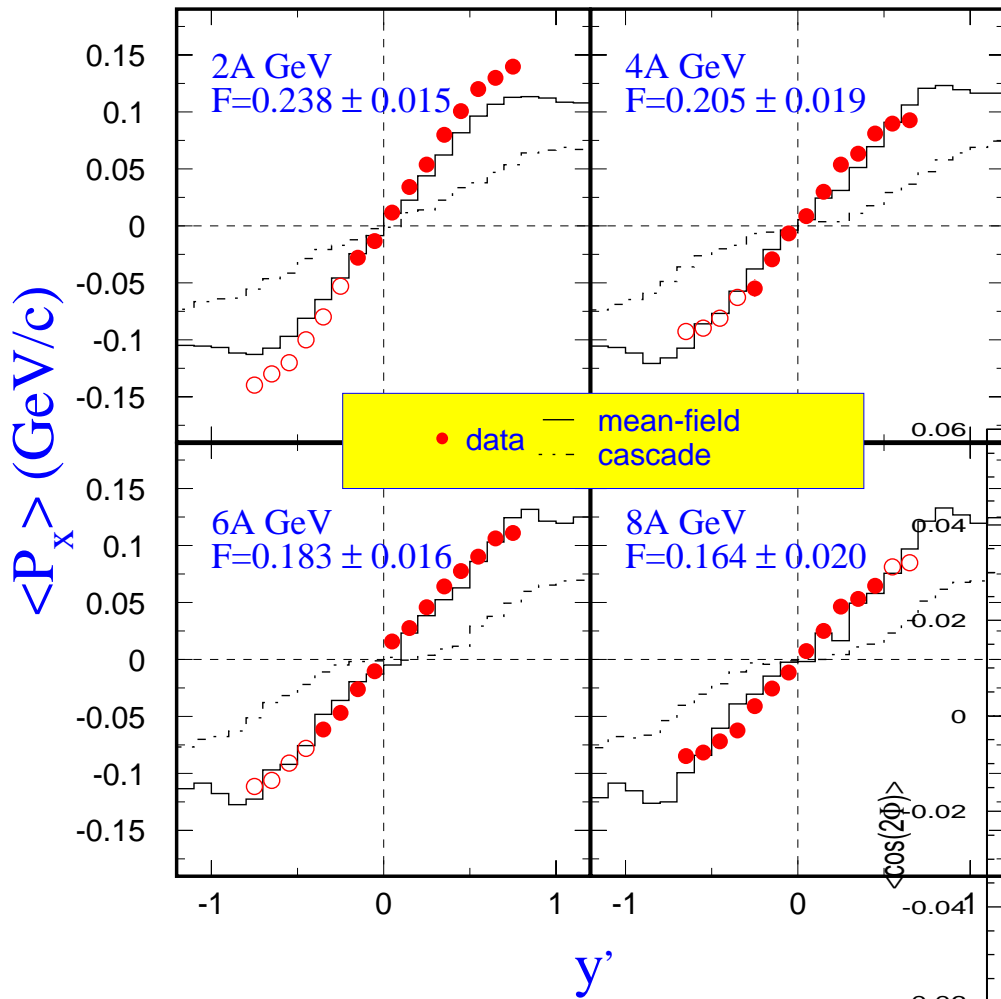
Flow measurements at AGS,SPS and RHIC

Flow and non-flow effects

Reaction plane detector for JHF

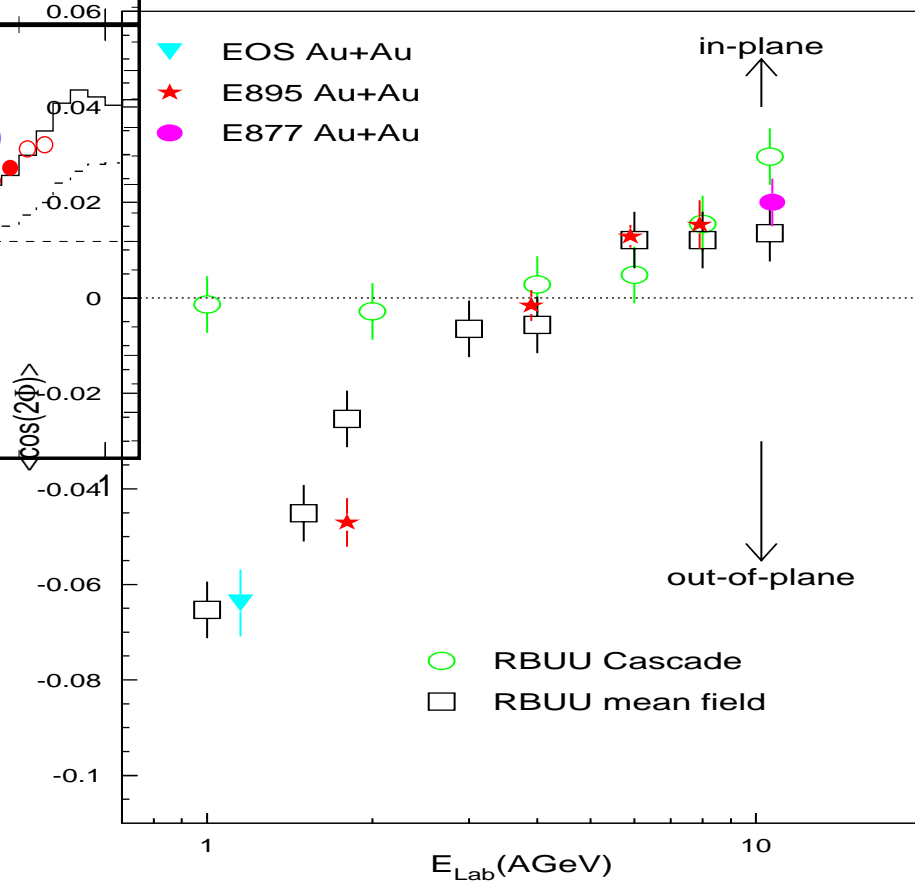


If we believe that we see Quark-Gluon-Plasma at the SPS energies, something must have happened before!

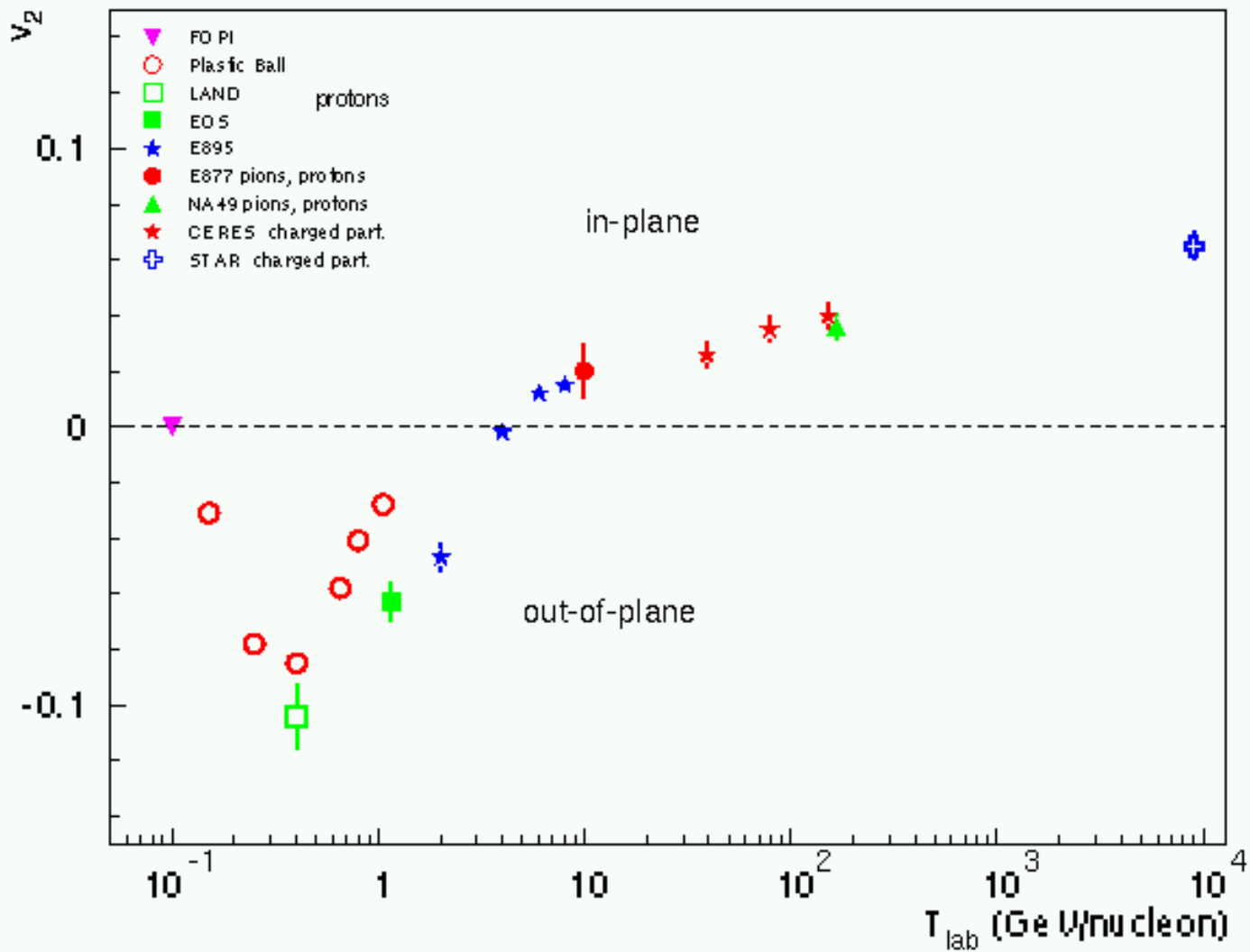


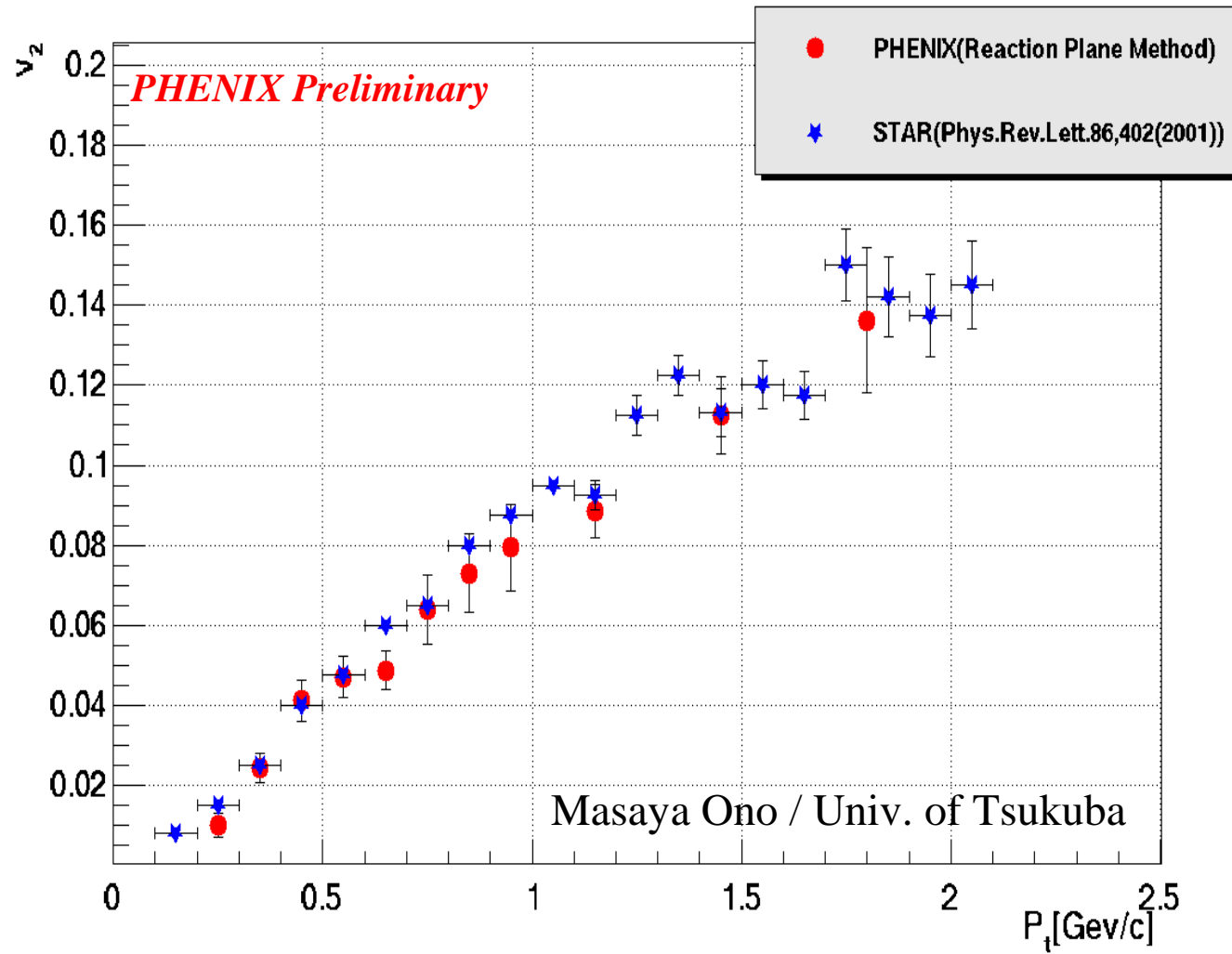
v_1 reduces with E_{lab} ,
 v_2 changes sign
 from neg. to pos.

AGS energies

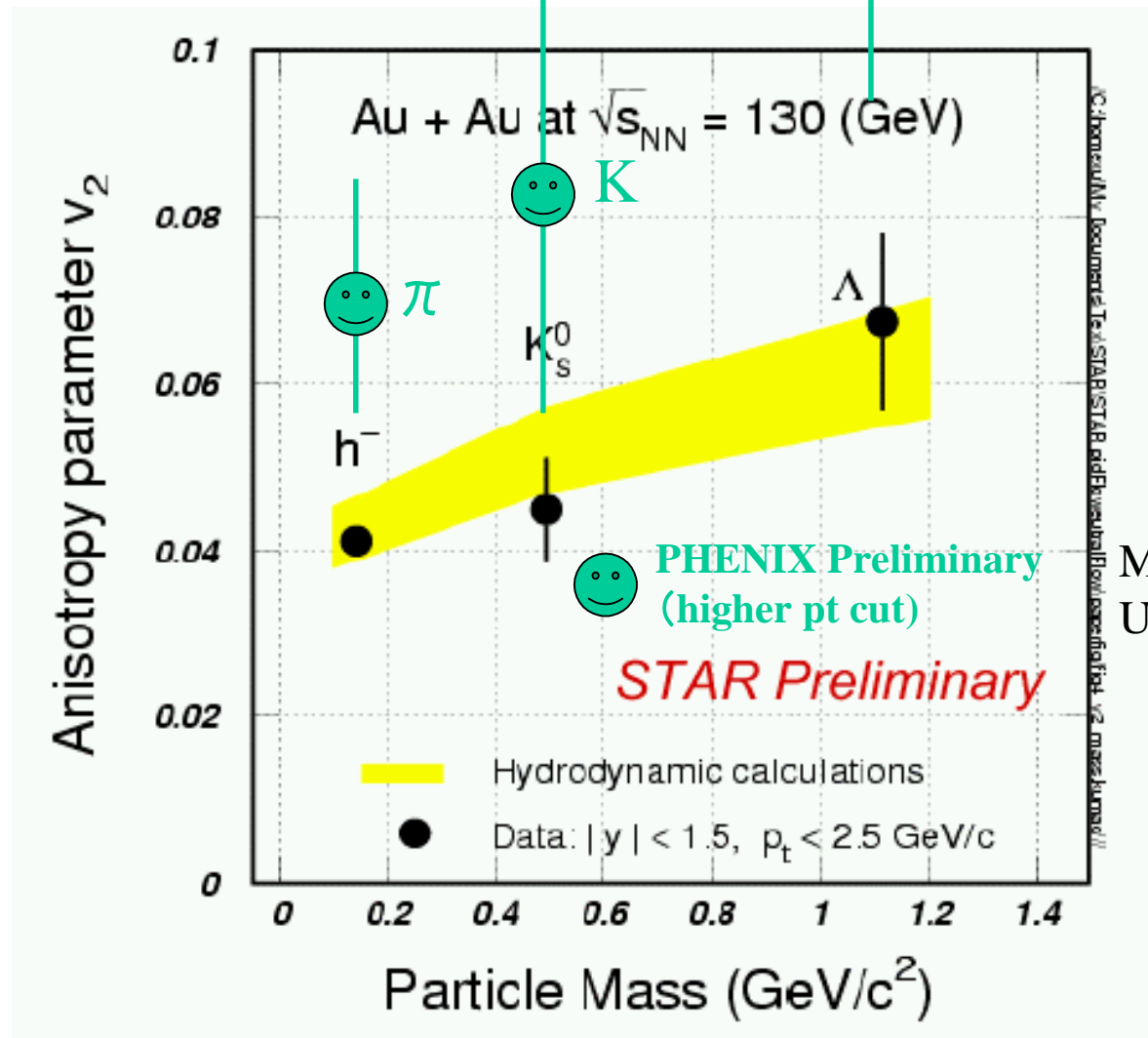


elliptic flow in Au+Au collisions





Explanation with hydro-
dynamics, again!



Masaya Ono /
Univ. of Tsukuba

Tomography in 6 Dimensions

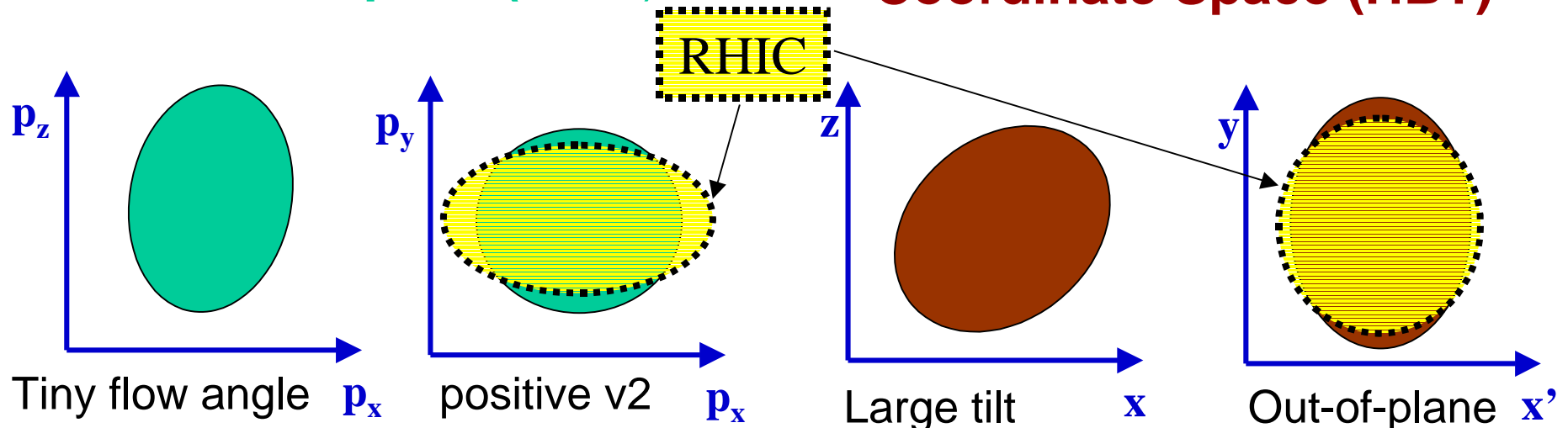
Flow analysis and HBT relative to the reaction plane allow a complete characterization of the final state in phase space, get space-momentum correlations

→ **6 dimensional Tomography of proton flow**

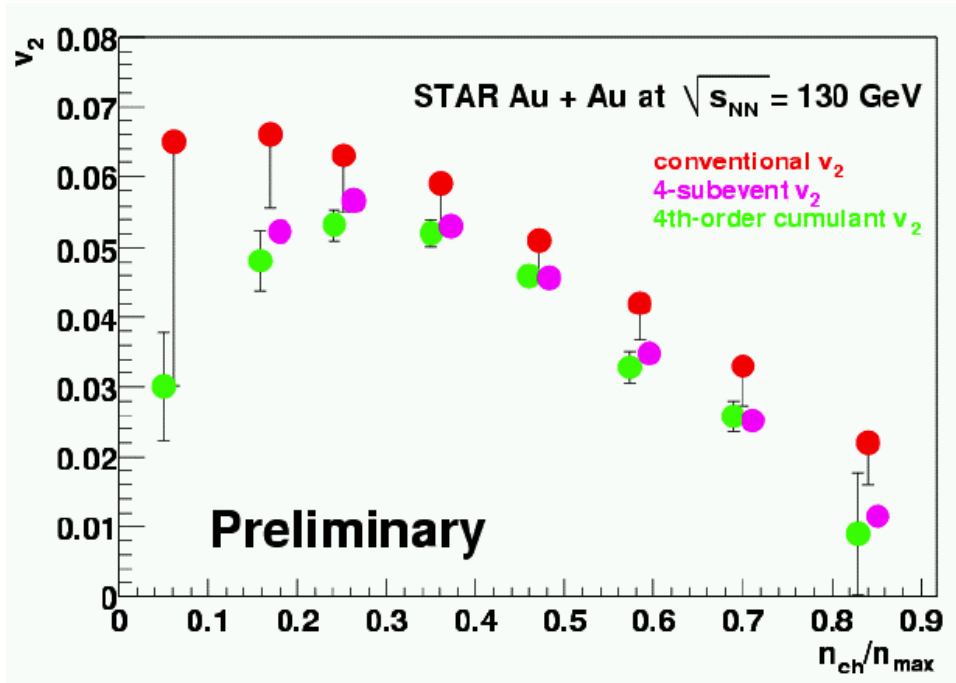
6 AGeV

Momentum Space (Flow)

Coordinate Space (HBT)

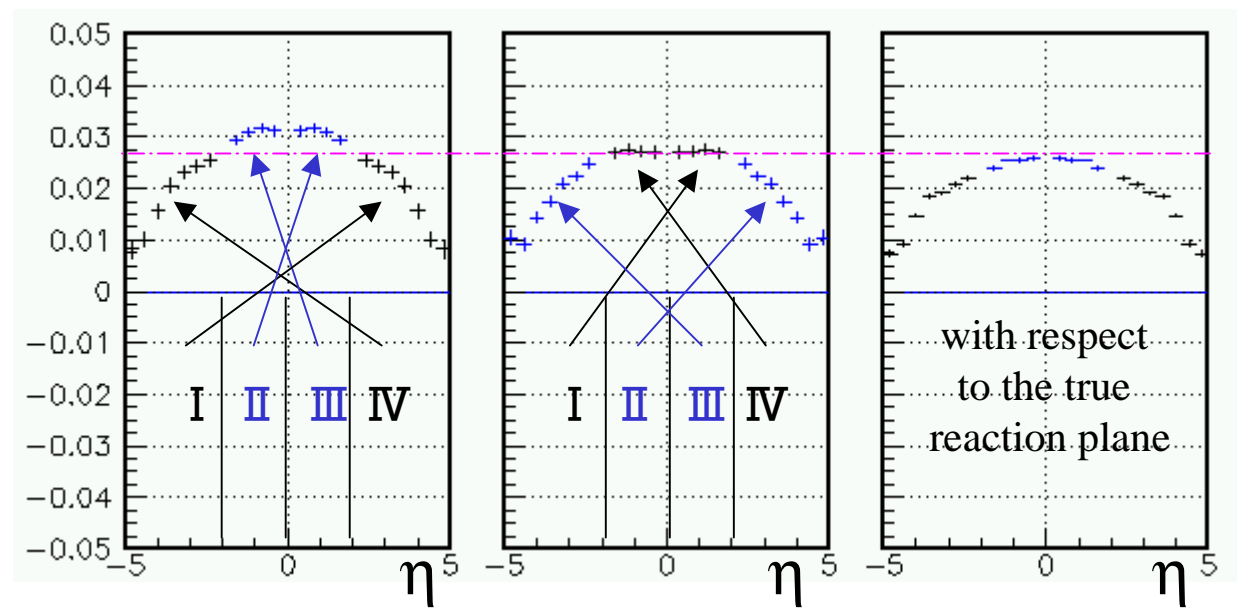


AGS-E895, Mike Lisa, QM2001

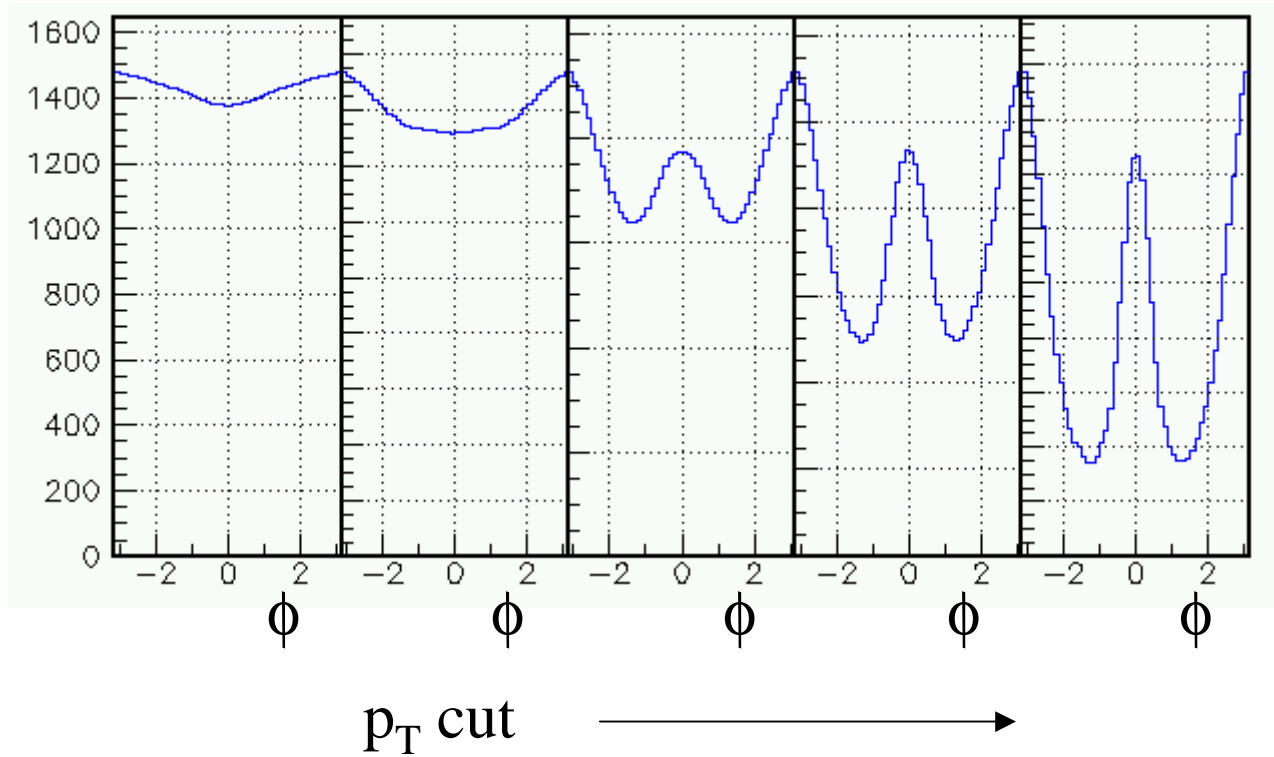


Non-flow effect

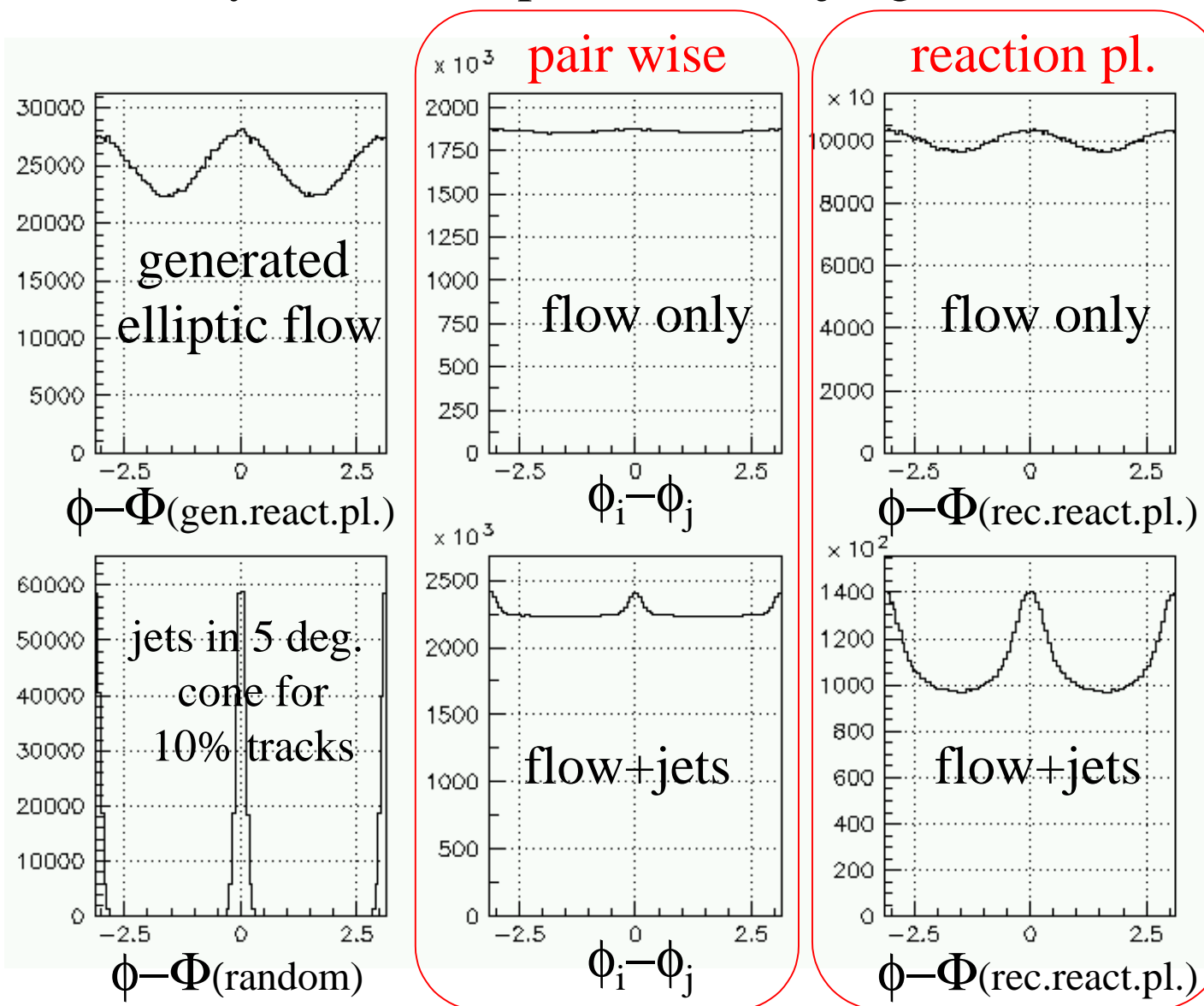
RQMD v2.4
 Au+Au at 200GeV

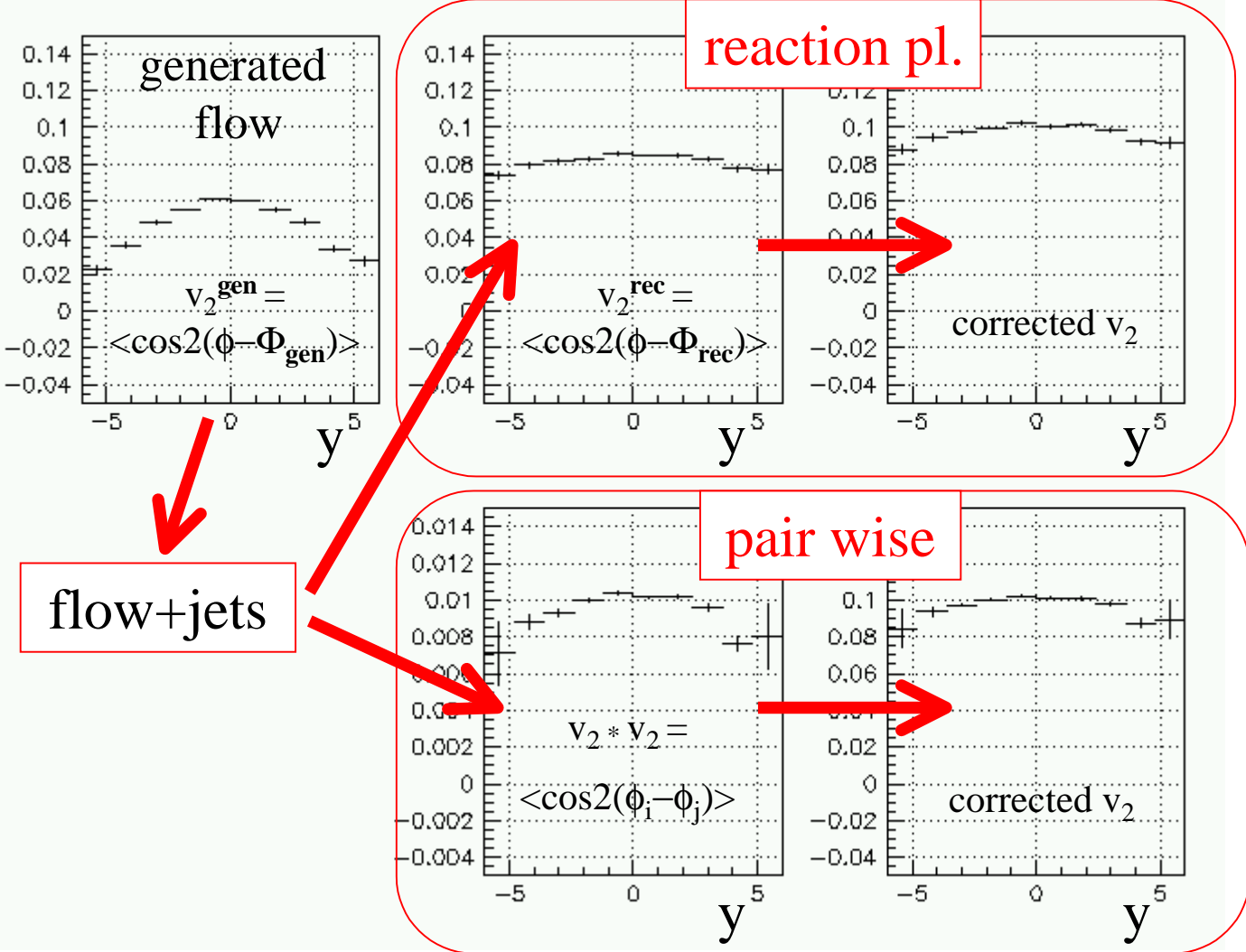


Pythia p+p at 200GeV



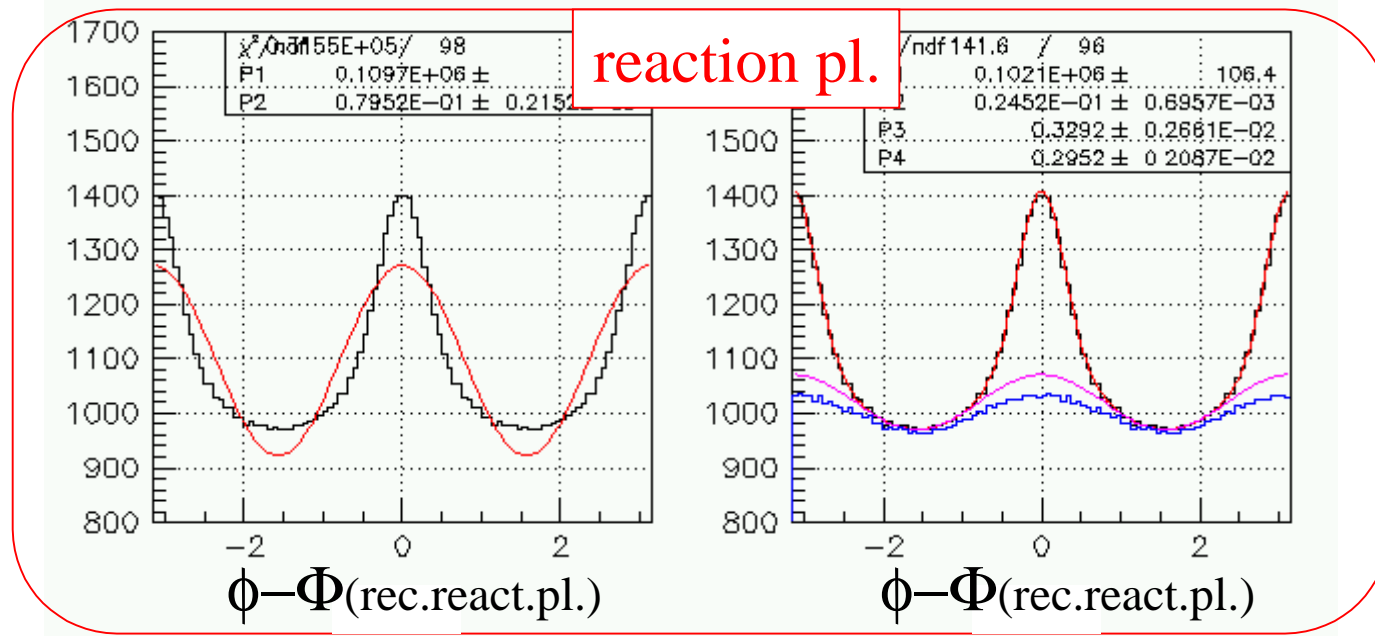
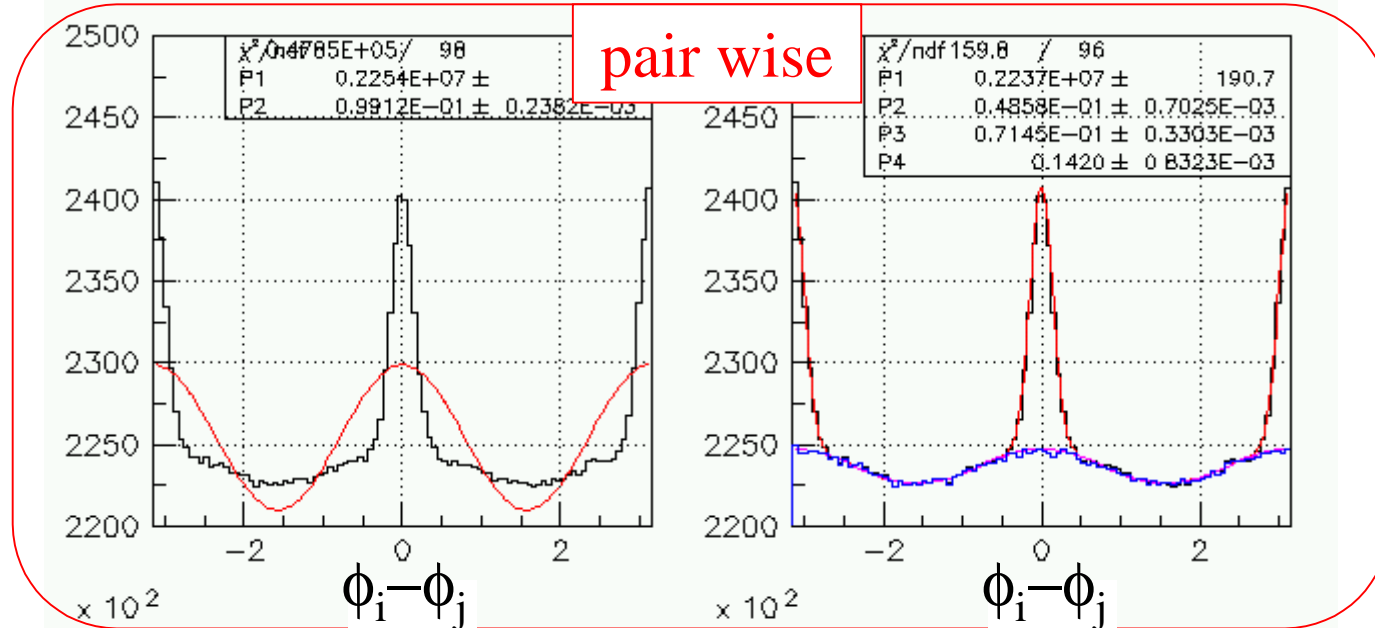
toy model : elliptic flow and jet generation





$$F(x) = N\{1 + 2v_2 \cos(2x)\}$$

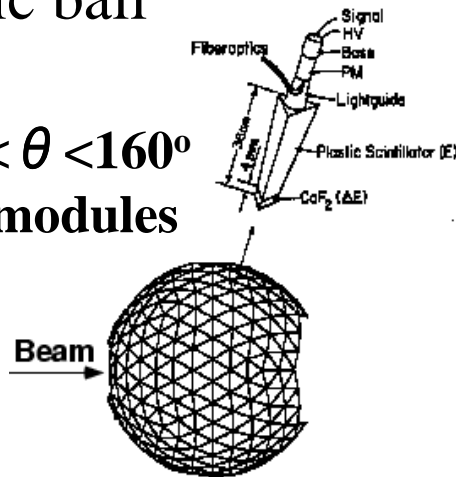
$$F(x) = N\{1 + 2v_2 \cos(2x) + A \exp(-0.5(x/\sigma)^2)\}$$



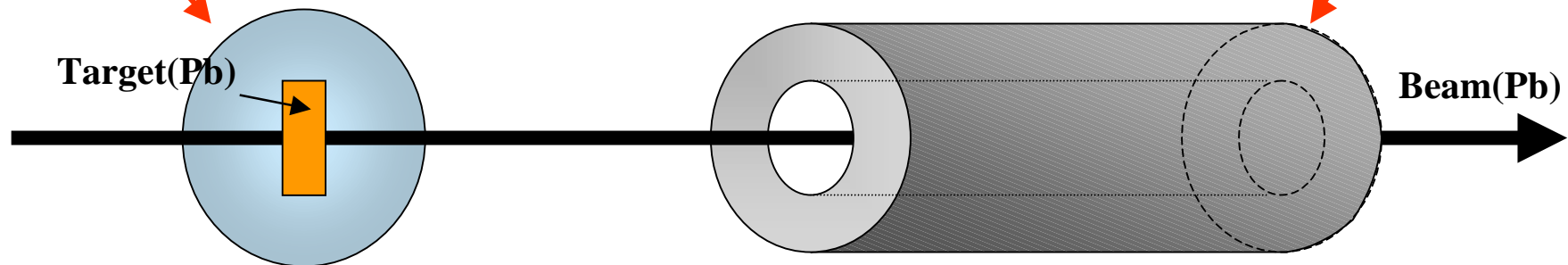
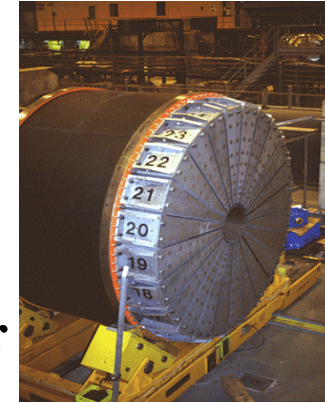
reaction plane determination at forward & backward rapidities for JHF experiment

plastic ball

- $30^\circ < \theta < 160^\circ$
- 655 modules

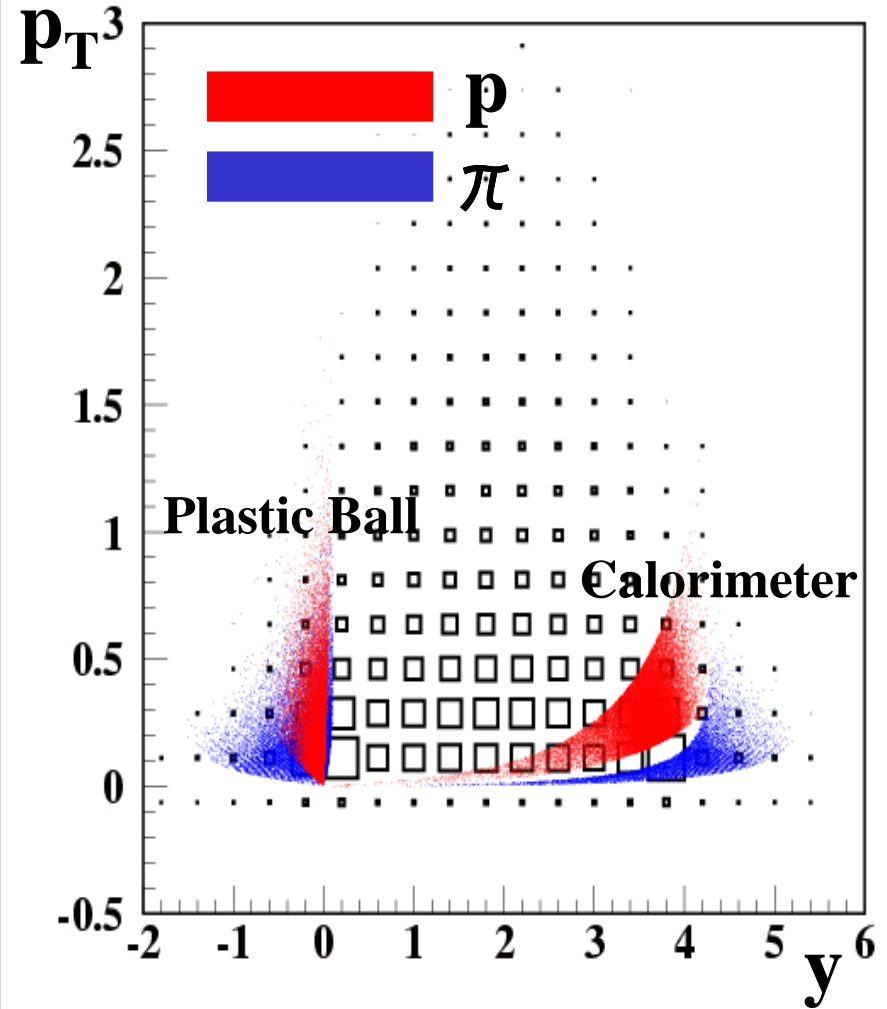
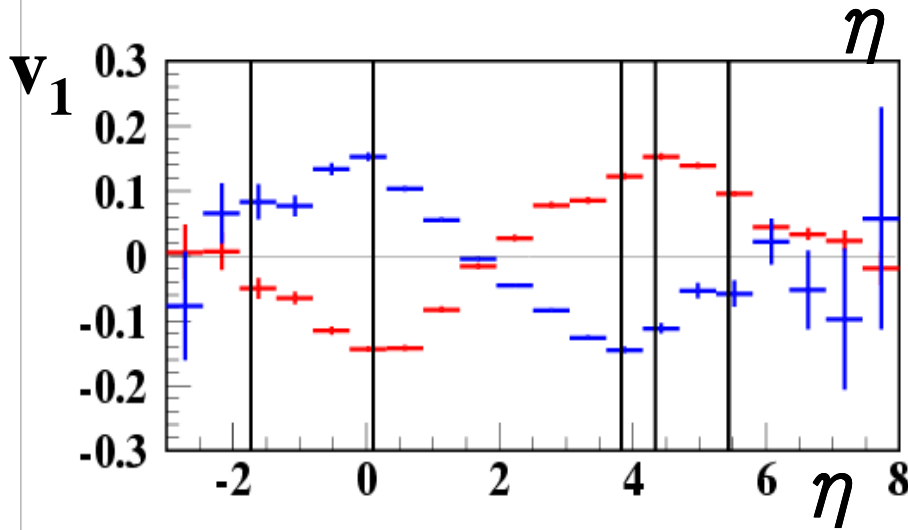
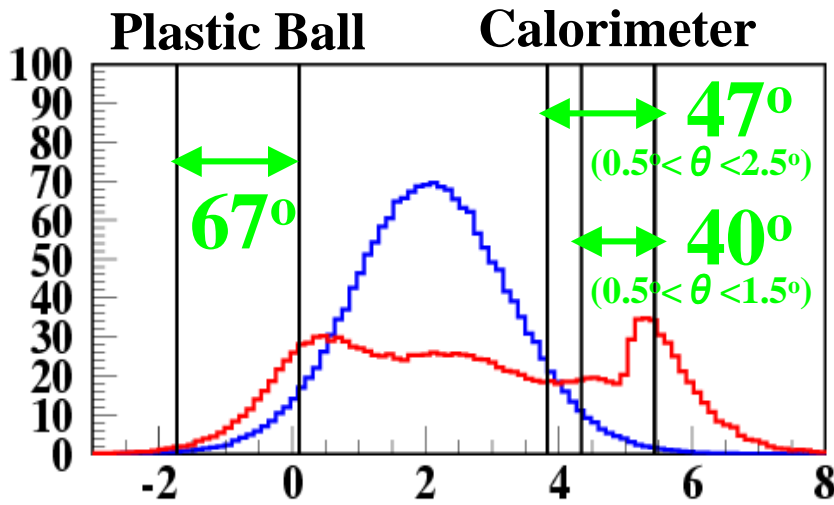


- $0.5^\circ < \theta < 2.5^\circ$ or $0.5^\circ < \theta < 1.5^\circ$
- 24 segments in Φ
- hadronic calorimeter



reaction plane resolution

$dN/d\eta$



Conclusion

- (1) Precise flow measurements as a function of beam energy between AGS and SPS
- (2) Reaction plane information will provide one more dimension to any other analysis
- (3) Reaction plane determination with a large rapidity gap to be non-sensitive to non-flow
- (4) Possible reaction plane detectors for any spectrometer experiment at JHF