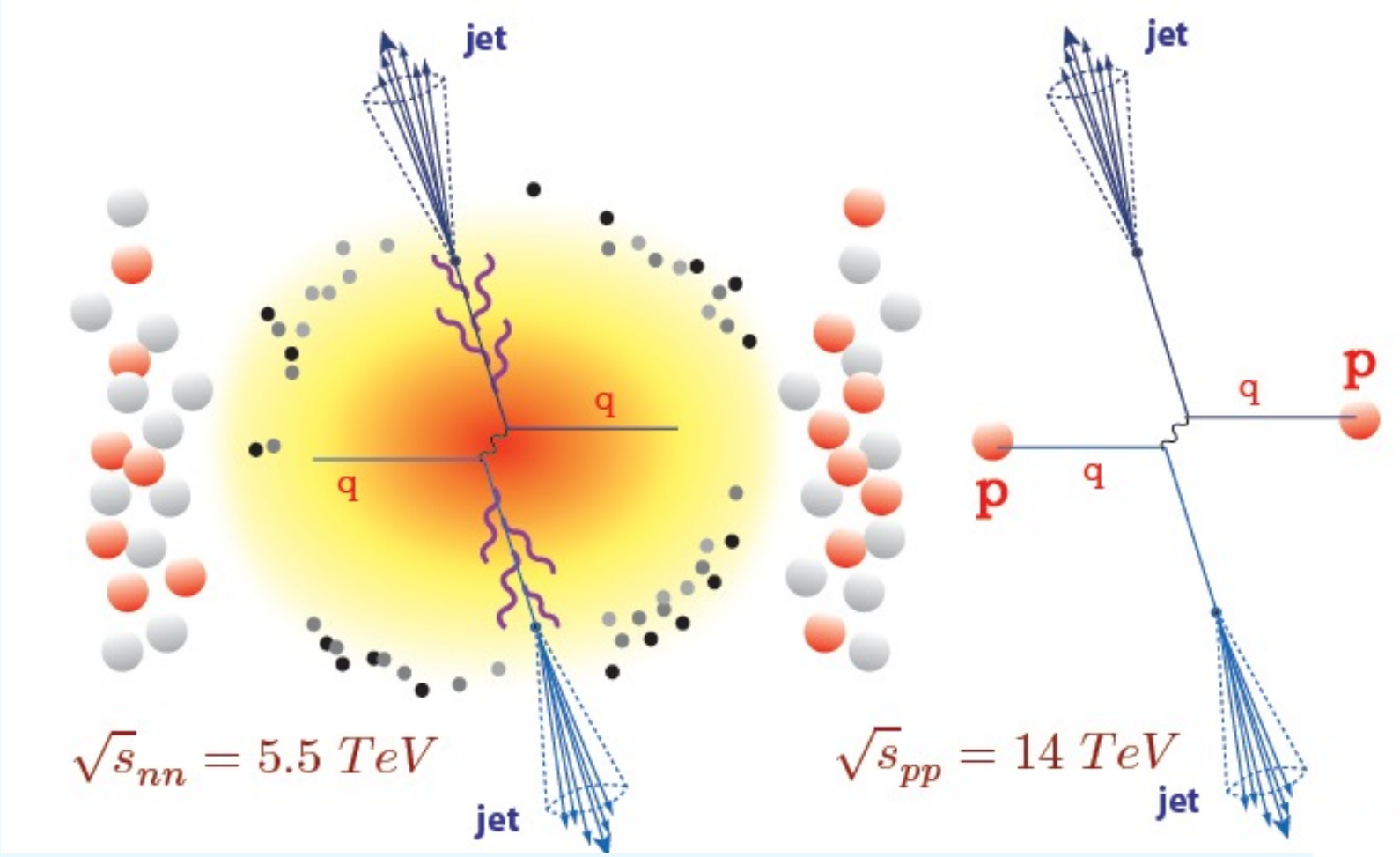
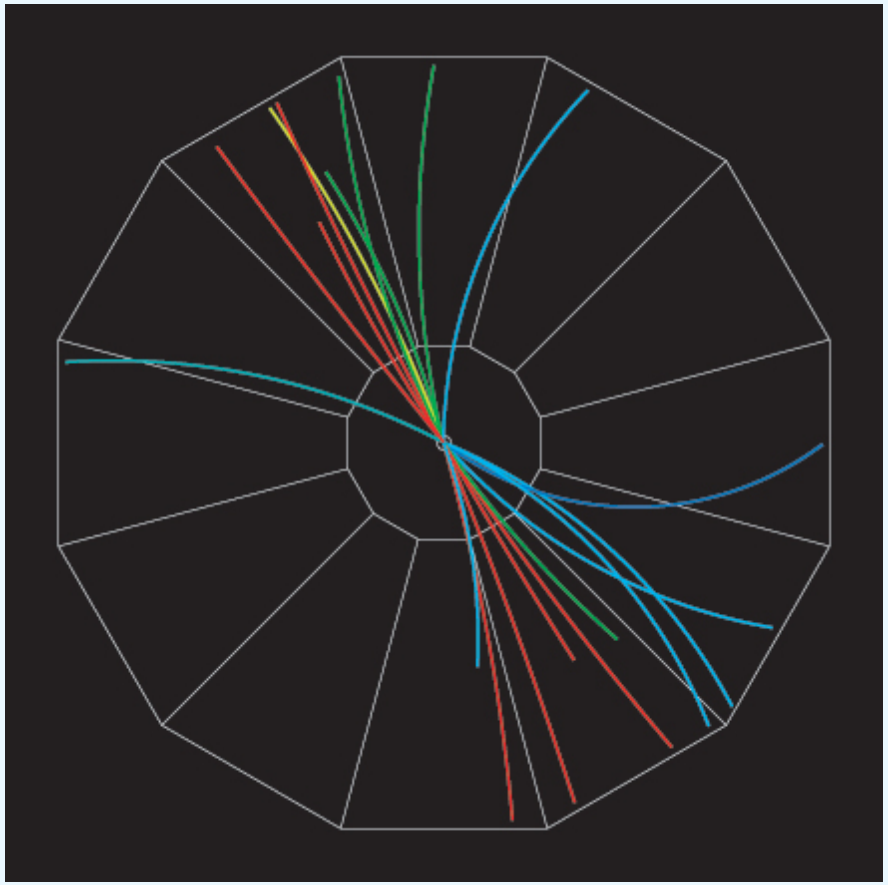
Jets + Homework 4

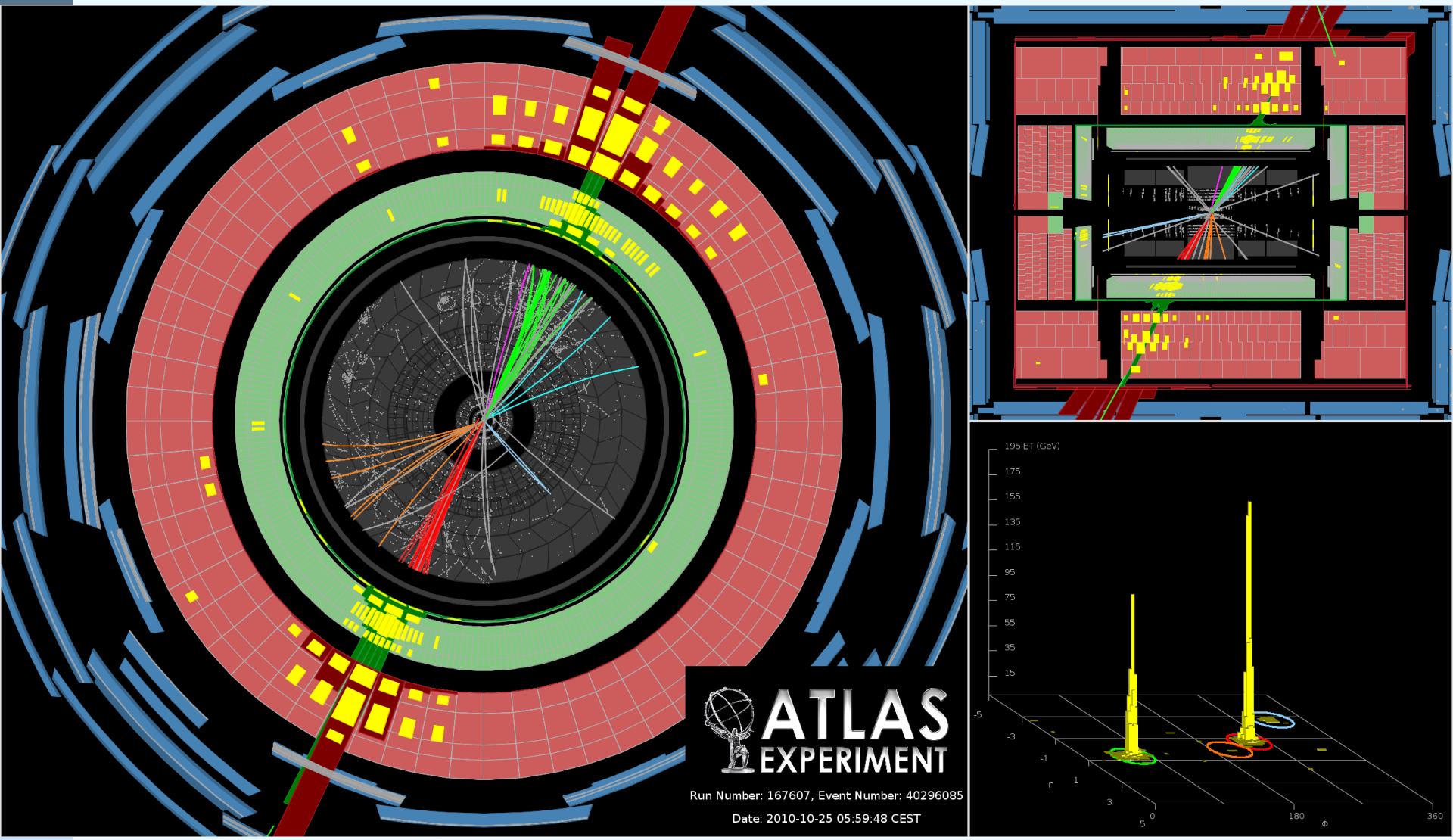
Jets in p+p and A+A



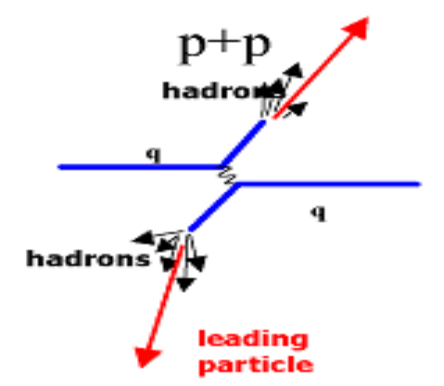
2-Jet event in p+p at $\sqrt{s}$ = 200GeV (STAR)

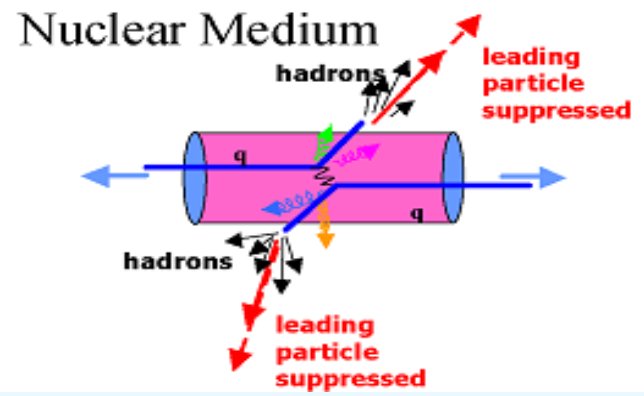


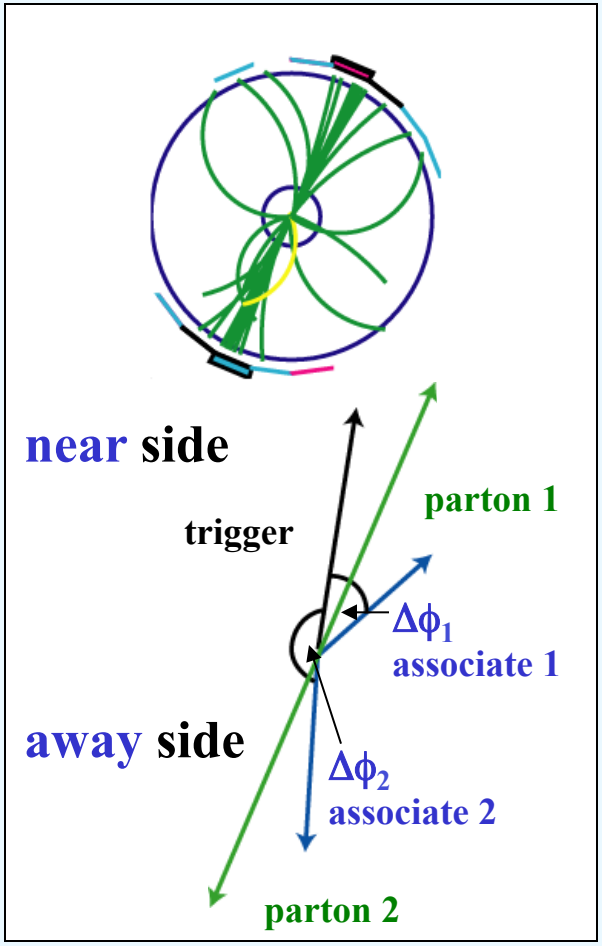
2-Jet event in p+p at √s = 7 TeV (ATLAS)



Azimuthal-Correlation



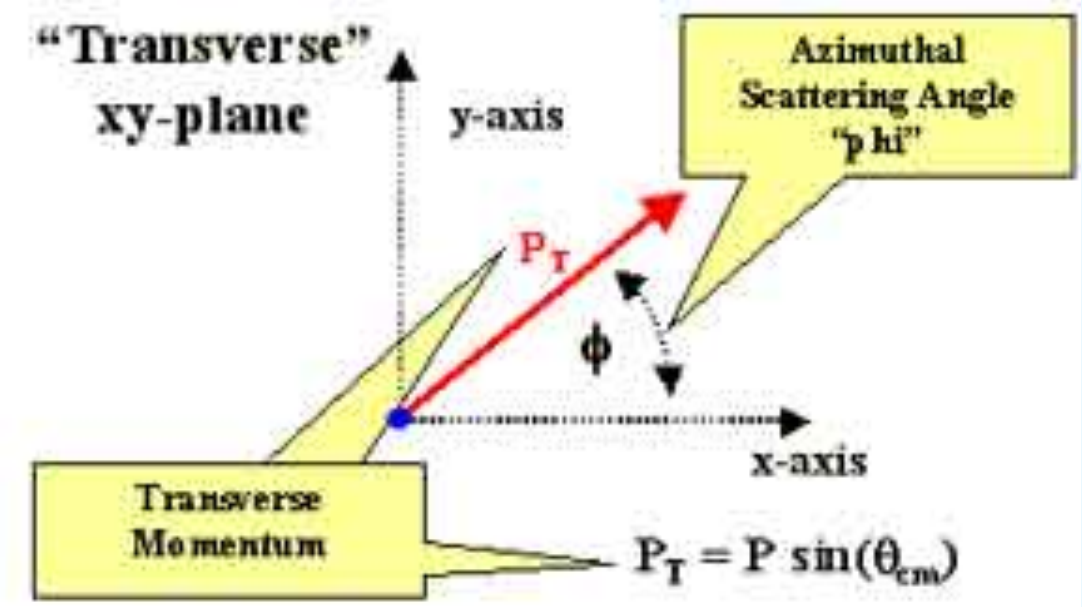




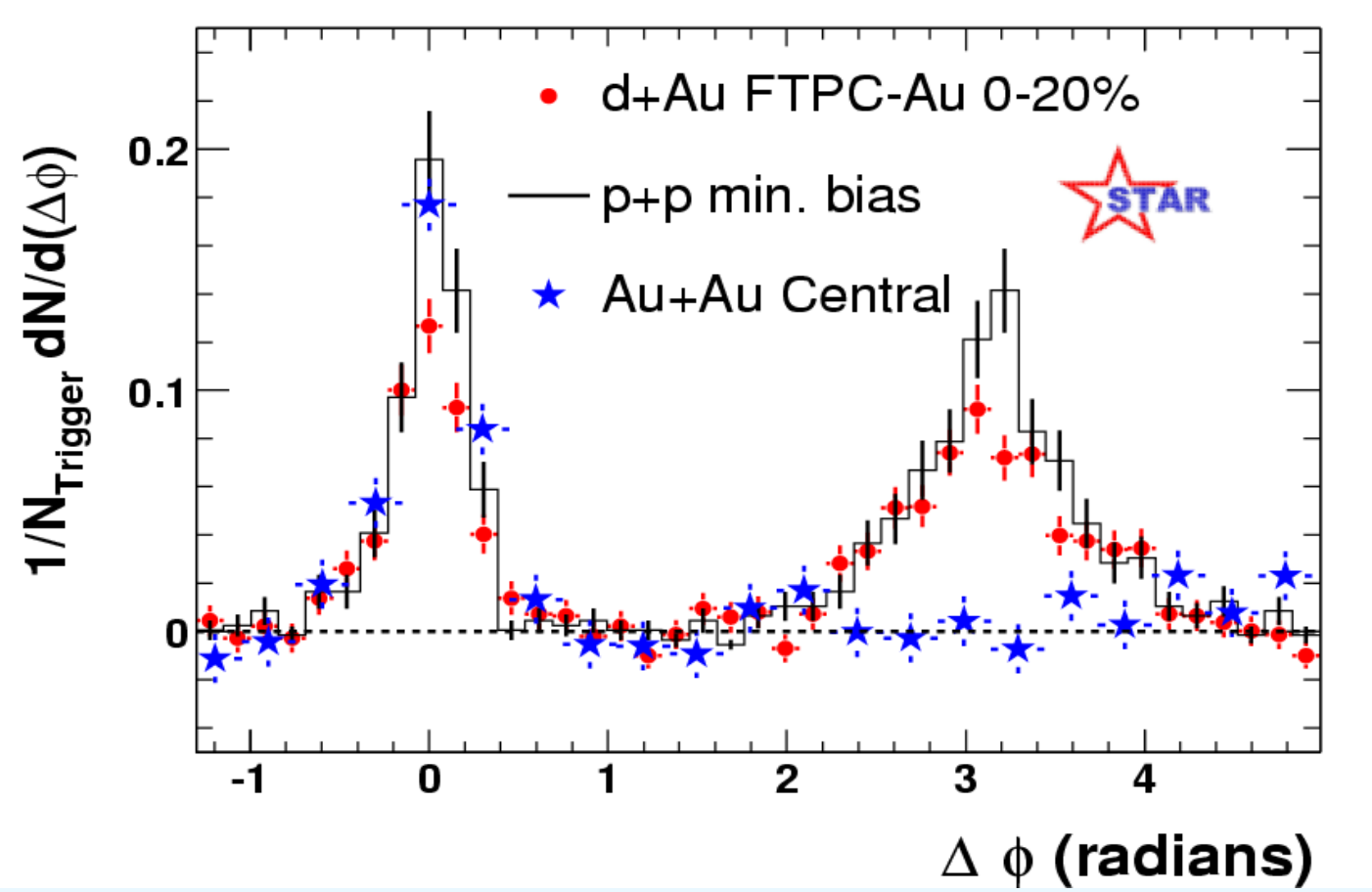
Kinematic Variables

Transverse momentum p_T:

$$p_T = \sqrt{p_x^2 + p_y^2}$$



Azimuthal-Korrelationen: RHIC Daten



Trigger Teilchen: **4.0 – 6.0 GeV/c**
Assoziierte Teilchen: **2.0 – 4.0 GeV/c**

Homework 4: due day April 27

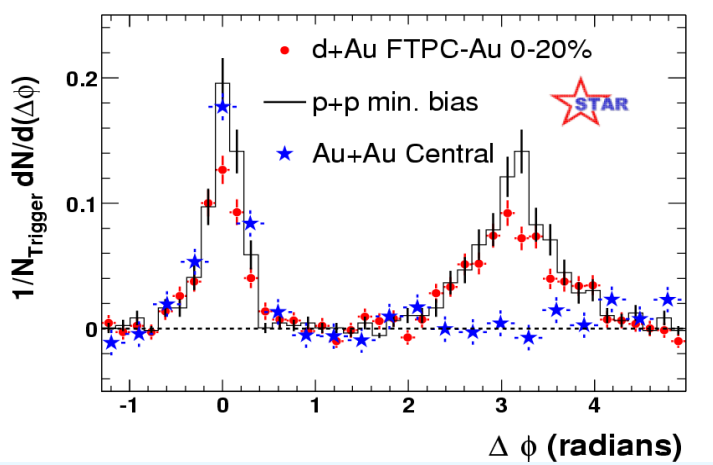
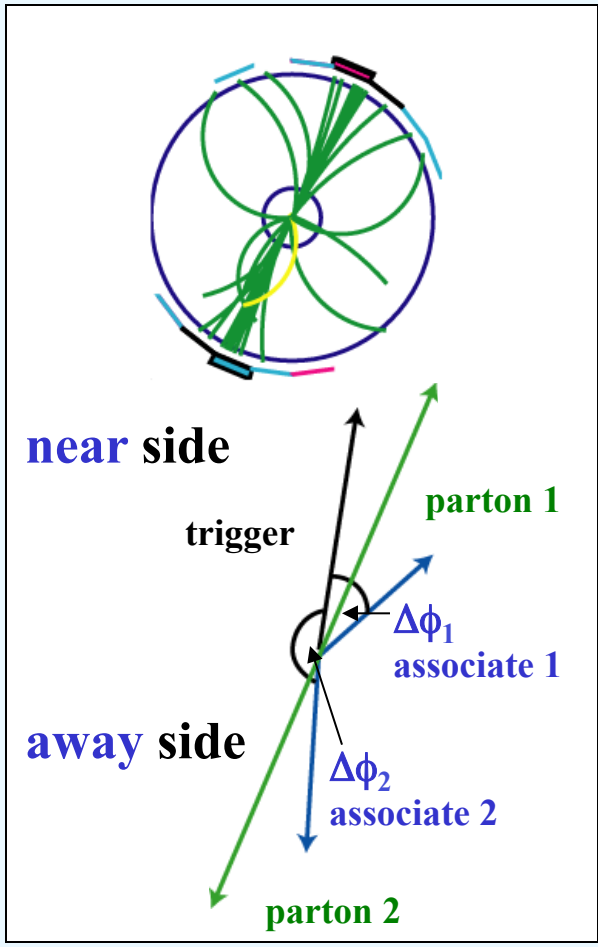
I created 200 Pythia events p+p at 7 TeV (30 GeV/c hard scattering)

→ ascii file of all charged pions

Particle event px py pz:

1 1 19.2119 -16.9473 46.836
2 1 2.68818 -2.22436 5.56438
3 2 -0.245131 0.252693 -0.176406
4 2 0.81093 -0.684846 1.60133
5 2 -0.137333 0.218012 -0.495384
6 3 -1.44181 0.977279 -3.12299

200 events, 1379 changed pions

Homework 4: due day April 27

1.) calculate and plot pt distribution of all pions
2.) calculate and plot phi angle in pt plane of all pions
3.) calculate and plot phi angle difference between high trigger pt particle pt> 4 GeV/c and low pt associated particle 1<pt< 4 GeV/c
4.) How many particles are in a jet ? (hint:jet identification is one particle with pt> 4 GeV/)