

π , K, p spectra from $p+p$ at 200 GeV

Mini presentation:

- Analysis status
- Acceptance maps
- Spectra as they look right now
- What's still to be done, timescale

NB: The analysis is not complete, so the present figures are just a snapshot to show what you can expect in the end.

Why this analysis is progressing a bit slowly...



Analysis plans and status

Analysis will yield:

- Soft π , K and p spectra from p+p collisions, based on 2001 dataset. This dataset is well understood after ratios analysis, and mostly needs acceptance maps and more thorough PID cuts.
- «Basic» measurements such as particle yields, temperatures and unlike-particle ratios vs. p_t and rapidity
- Some physics arguments, but let's see the yields first...

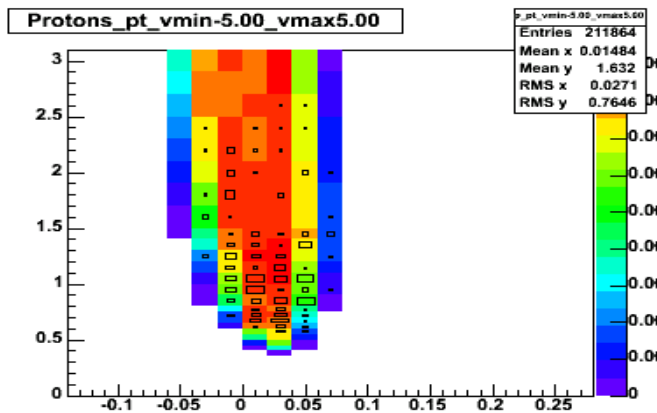
Status:

- All major elements are in place, except efficiency estimates

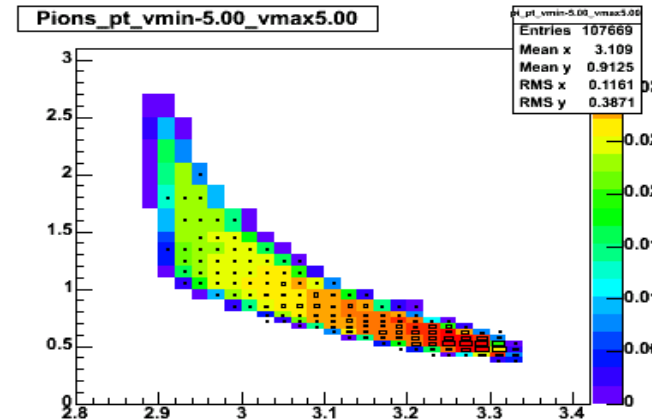
Acceptance maps - snaccpack

Maps have been generated for the entire 2001 dataset using snaccpack (now in CVS), a package that makes geant sims with input from the geom. db., converts the cdat files to root trees for space and time efficiency, and makes maps quickly by reading the trees. Excellent overlap with data at all settings - examples:

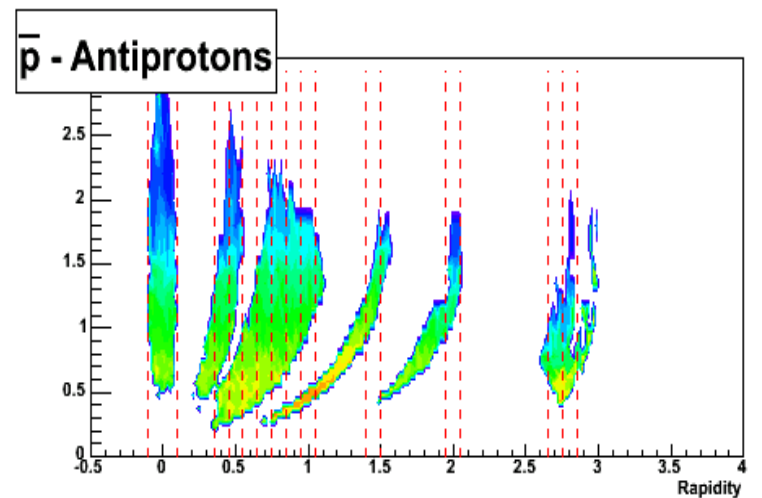
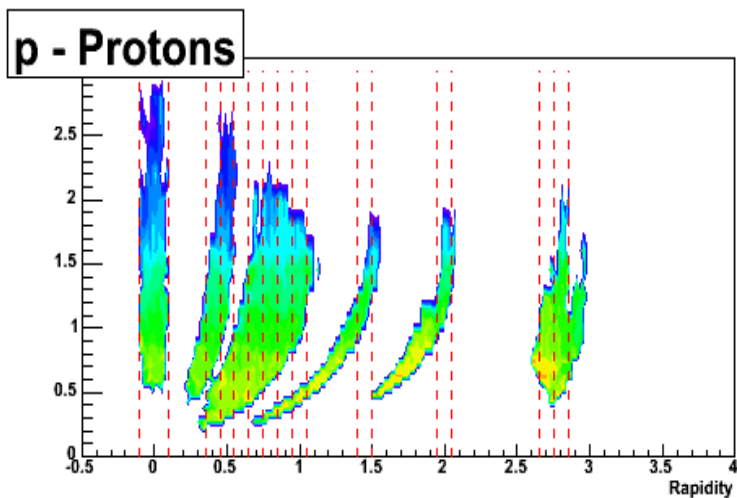
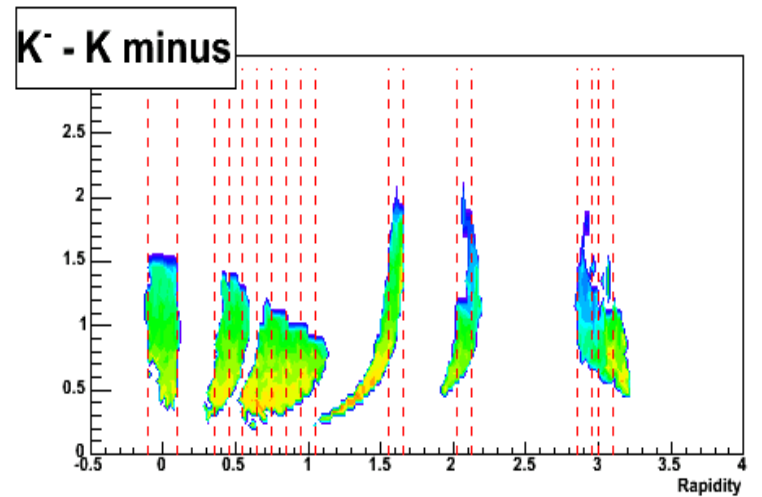
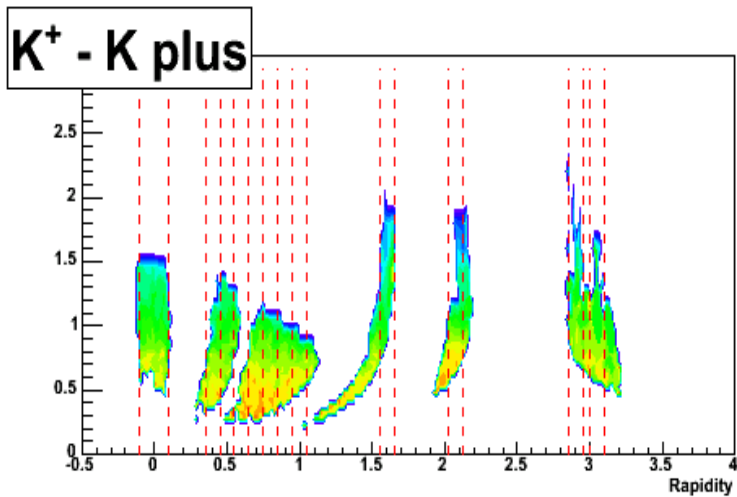
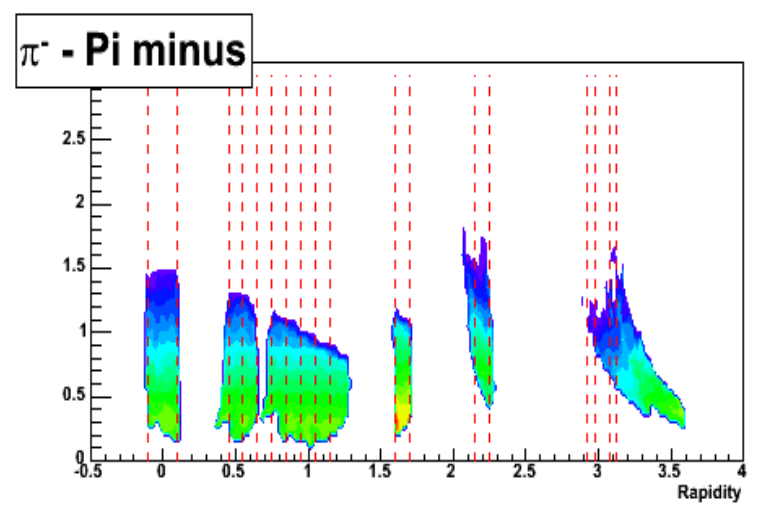
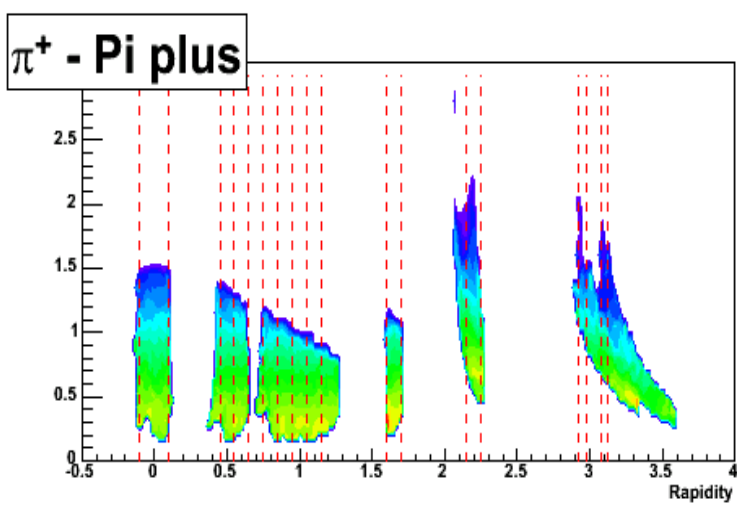
Protons at 90deg:



Pions at 4deg:



y-pt coverage

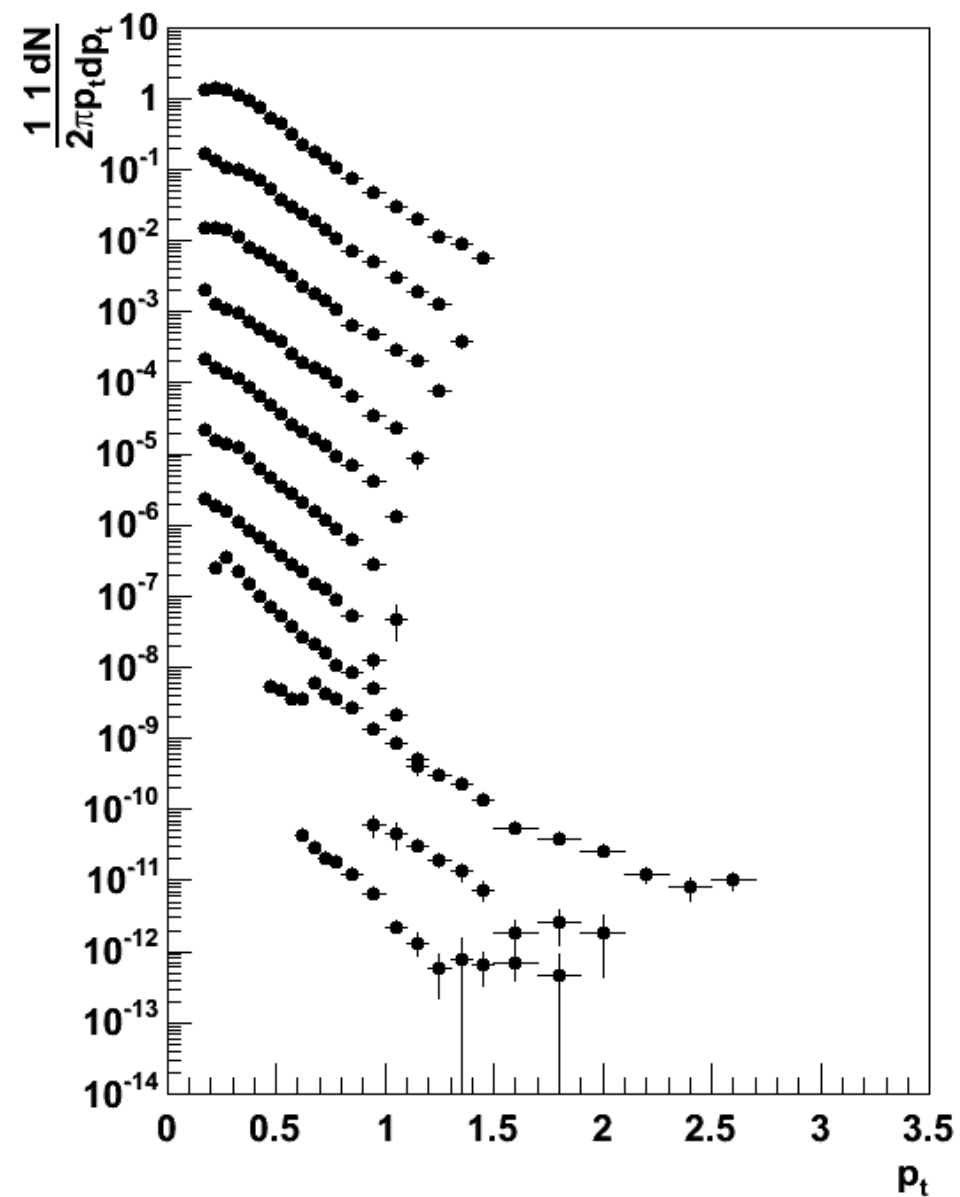
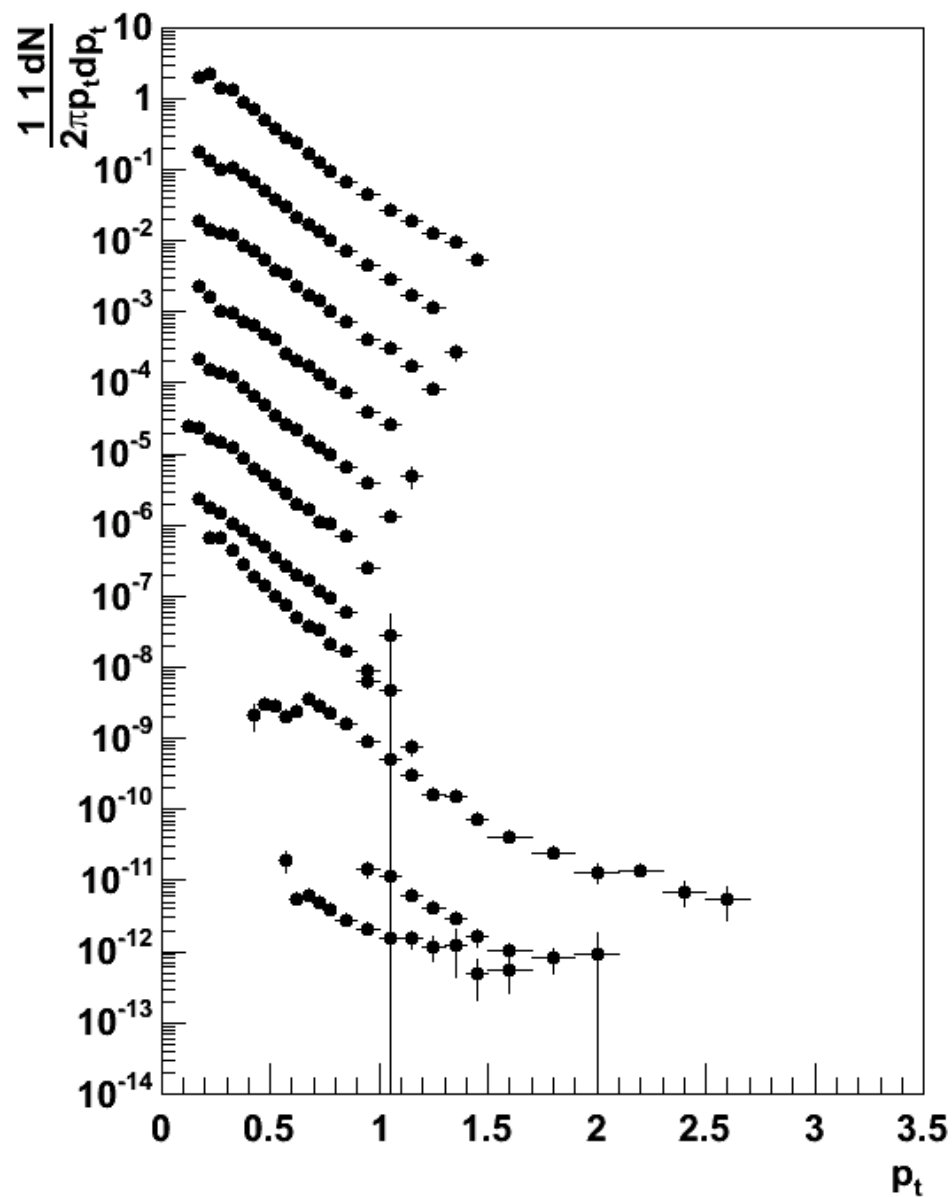


p+p soft spectra

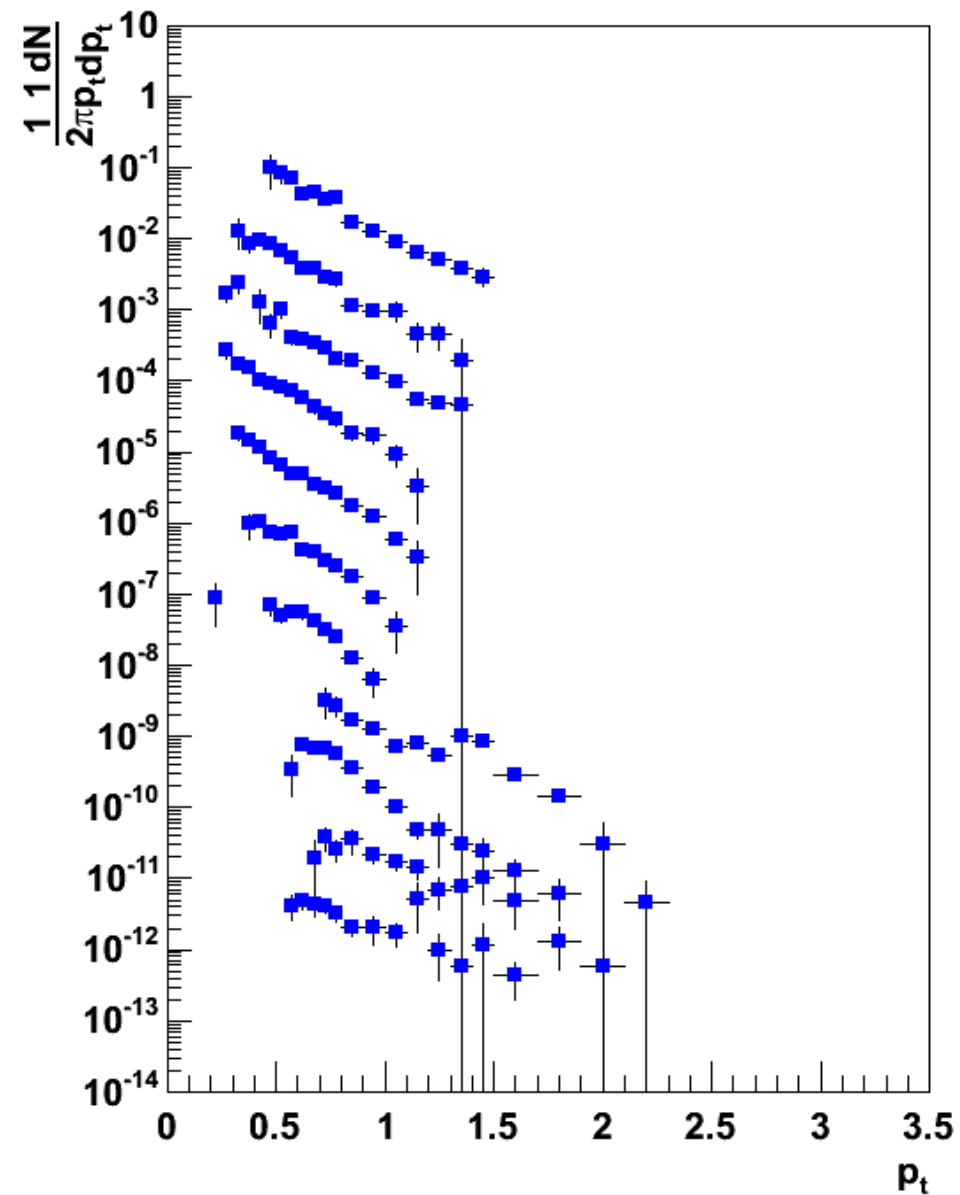
Spectra (pt projections)

- Normalized y -pt maps projected to pt axis, as per «Peter and Djamel» method
- Empty bins treated with Poisson statistics
- Top spectrum: $y=0$, un-normalized
- Following spectra normalized by 1/10, 1/100 etc.
- Angles used: 90, 60, 45, 40, 30, 20, 12, 4, 3
- Lots of detail-work to be done on FS spectra!

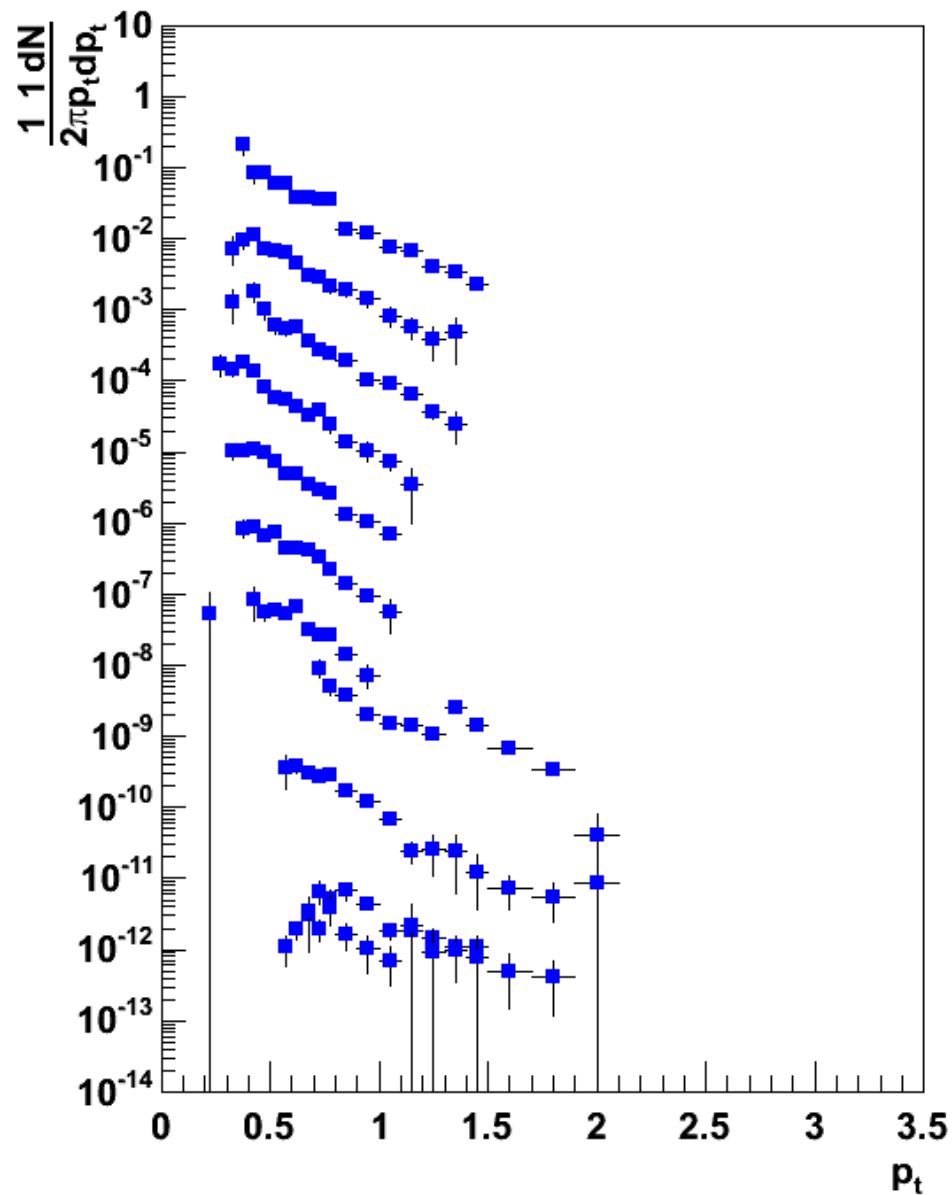
Currently my $y=0$ results reproduce STAR in shape and magnitude if I scale by approx. a factor of 3. This is reasonable, since I have not yet included efficiencies, fraction of cross section seen, effects of many 2σ cuts etc.

π^+ - Pi plus π^- - Pi minus

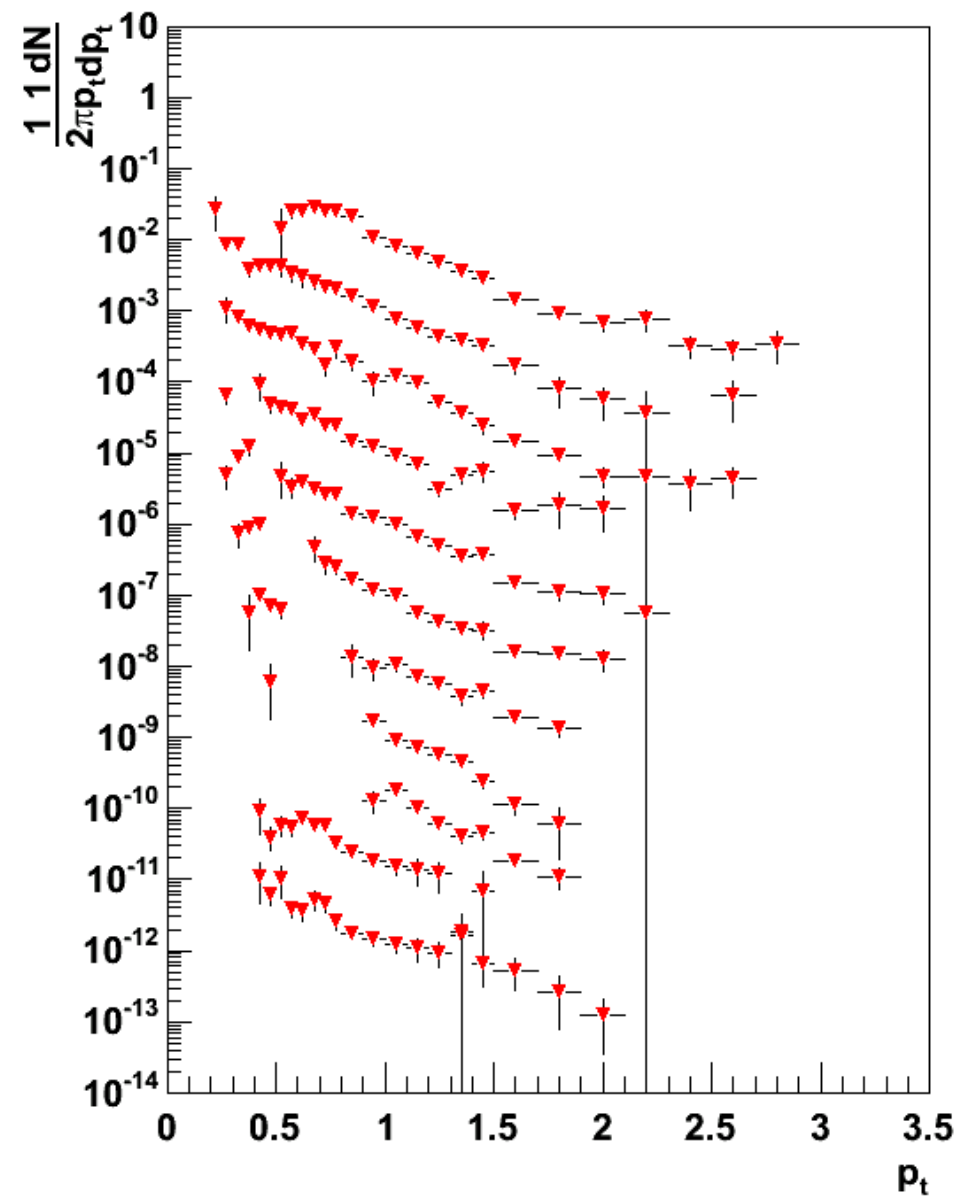
$K^+ - K$ plus



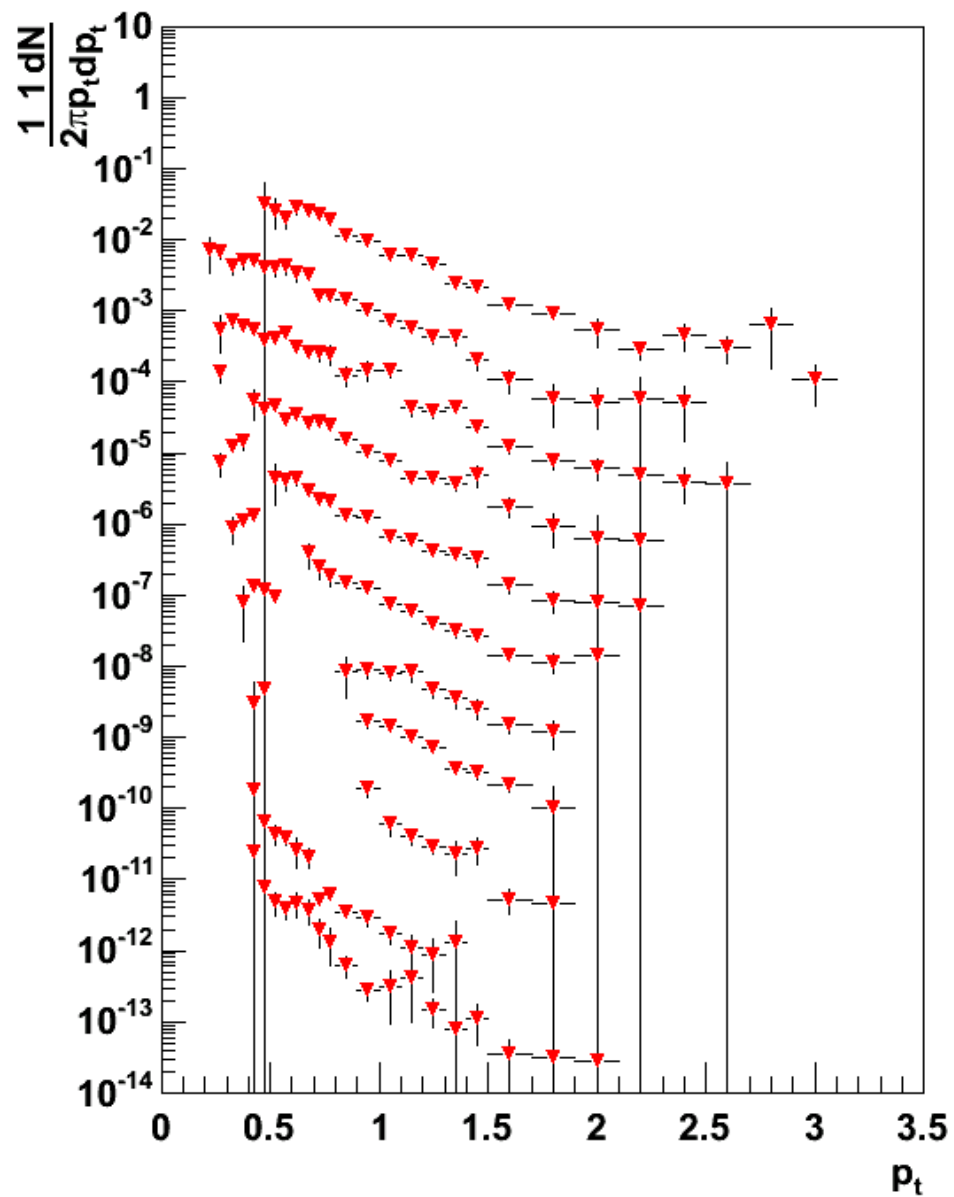
$K^- - K$ minus



p - Protons



\bar{p} - Antiprotons



To be done, timescale

Still to be done:

- Setting-by-setting PID check and thorough look at cuts made. Especially important at 12deg, where C1 seems to misidentify kaons as pions.
- Estimate efficiencies
- Proper treatment of errors and systematic effects

Timescale:

- Results ready by PANIC in october at the latest, prelim. results hopefully during august
- Thesis handed in before Christmas 2005 :-)