Comments to pp analysis

F.Videbaek

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Some discussion of efficiencies in pp and additional trigger corrections for (at least run-5 and run-6)

CC corrections

- In general the rapidity densities are estimated from

  $d^2N/2\pi p_t dp_t dy$ = Acc. $N(y,pt)/N_{cc}$ (ignoring vertex dependence in these formulae)

  =Acc.L. σ(y.pt).Prob(having a CC with counts at y,pt)/L. σ_{CC} == σInel. σ_{CC}/σInel

  Thus to estimate the nominator and denominator one can estimate these corrections by

  – MC simulations
  – Analysis of spectrometer data
  – Vernier scans (for the total cross sections).

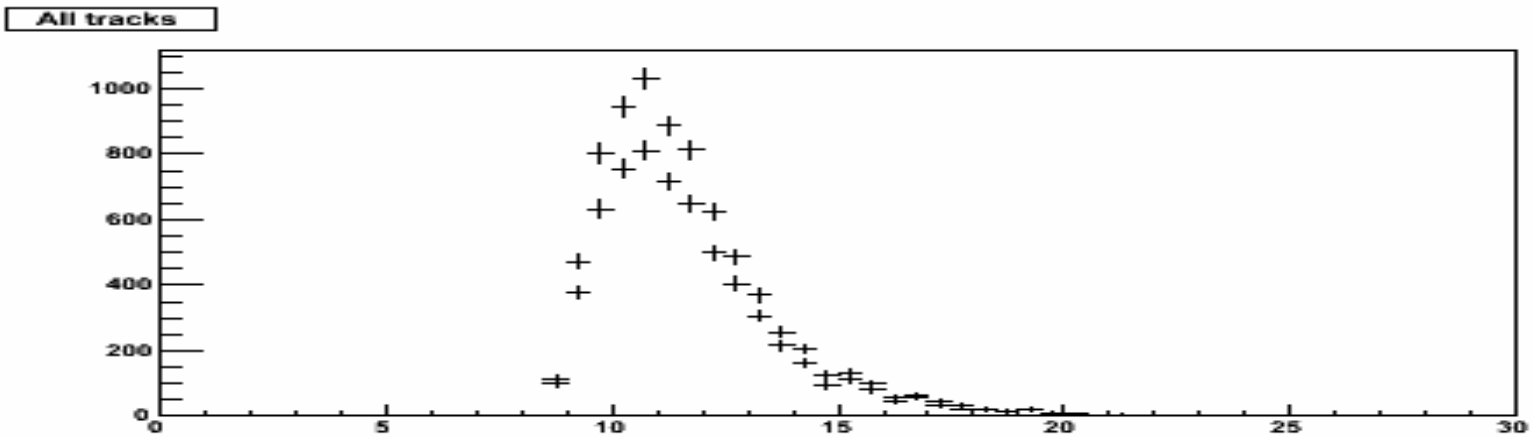
Vernier scan

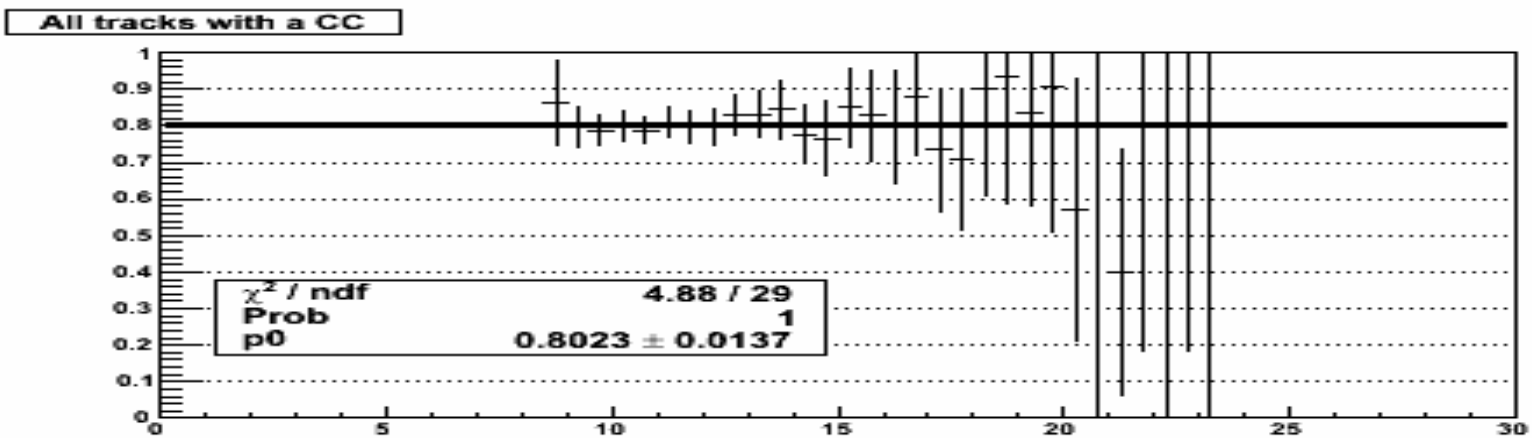
- For the 62 GeV I returned to the two scans i.e. run 16098 and 16152. CA-D determined from the ZDC rates the σ_x and σ_y of the beam at these stores. The formulae for estimating the luminosity L and the cross section σ_{CC} is
- $L = f.n1.n2/4\pi.\ \sigma_x.\ \sigma_y$ wirh n1,n2 ions per bunch, f RHIC frequency (9.6 MHz)

And the rate from the CC is given by

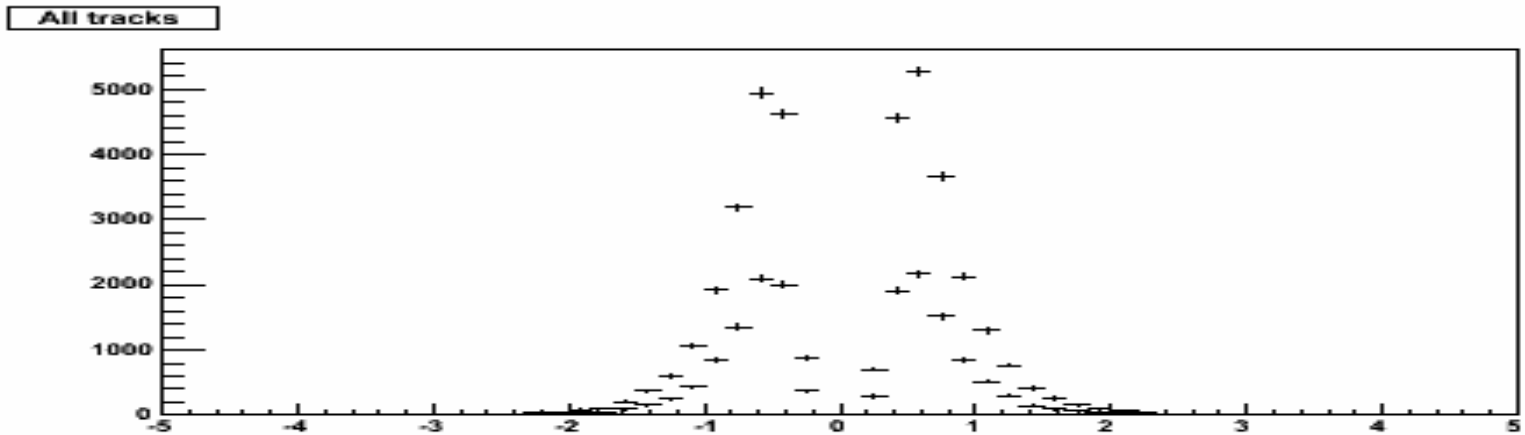
- Rate(cc) = σ(cc)*L
- The variances of the beam are 0.51, 0.66 The rates are taken from our scalers, and correcting for i) 100-> 120 bunches interacting and ii) vertex distributions.
- For the two runs I get σ(cc)= 12.9 and 11.6 mb;
- The corresponding NSD and total inelastic is 27.5 and 36 mb as estimated from PYTHIA at 62 GeV.
- Thus the CC sees 35% and 45% of these two cross sections.

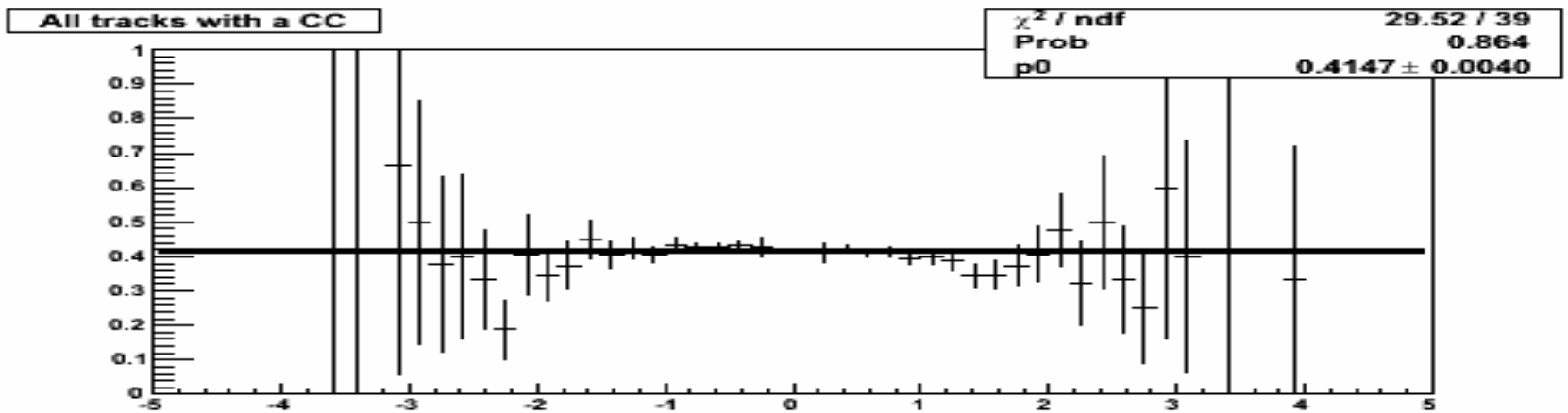
200 GeV tracking eff



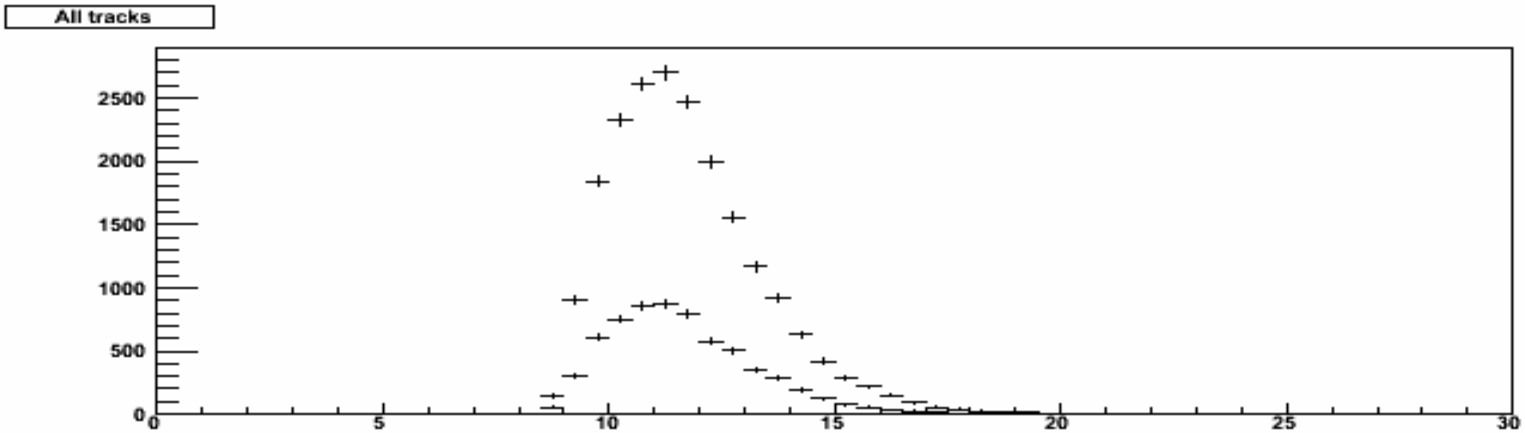


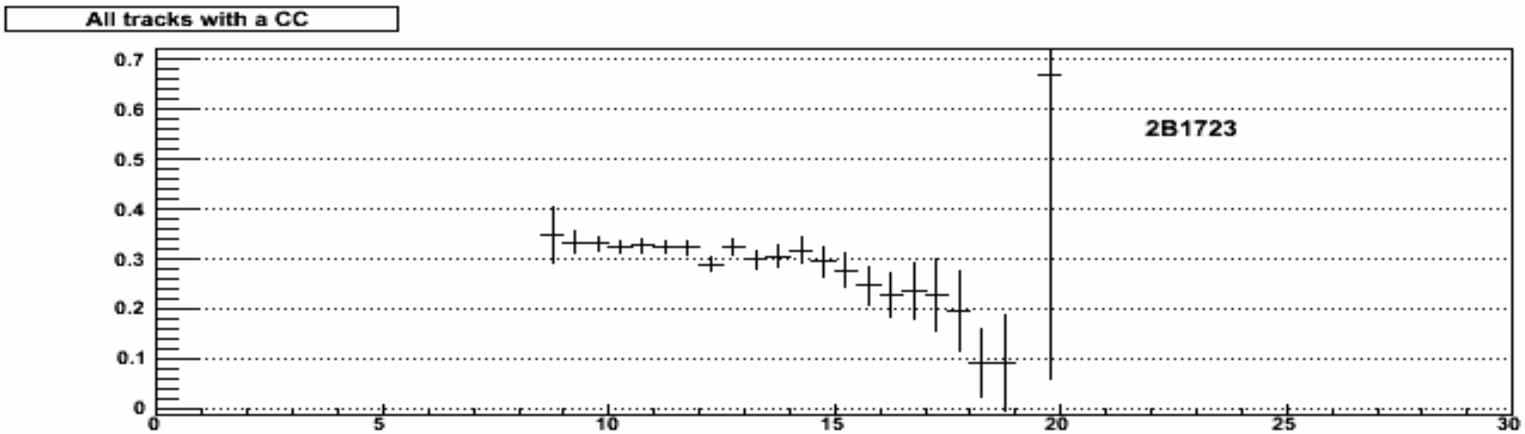
62 GeV tracking eff- MRS





3Deg Pi+ (pi- is at ~0.4 with similar pt dependence.





Inefficiency of H2 in triggering;
notice the even-odd staggering due to geometry
Max effect is 5% (apart from slat 24 ~25%).