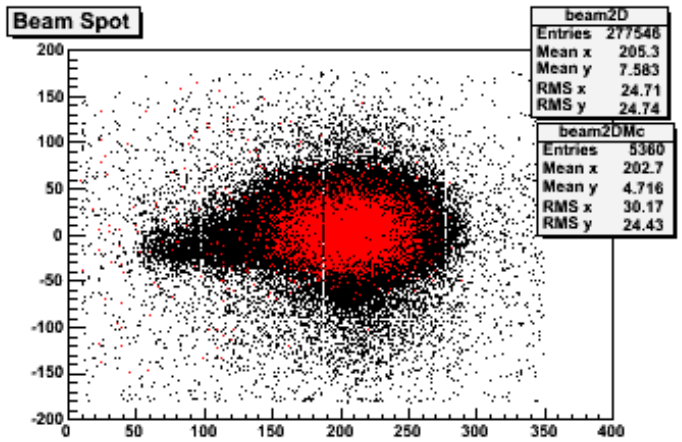
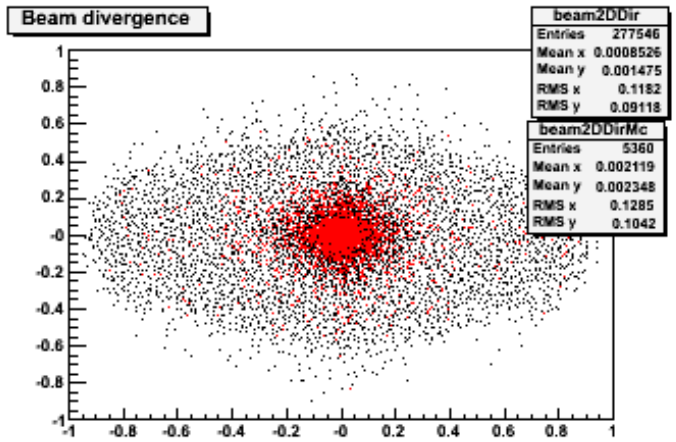
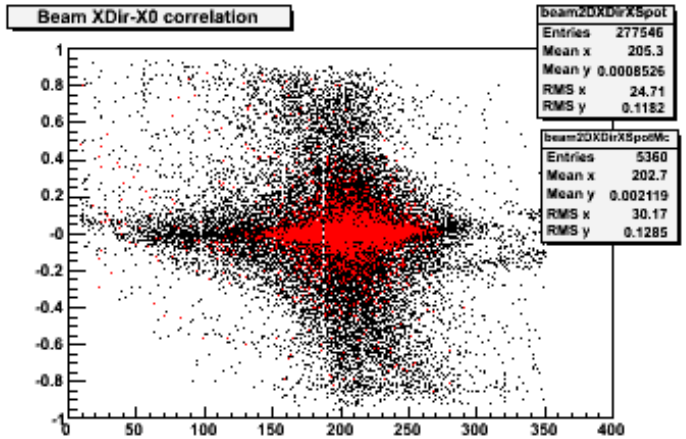
Random trigger FB runs contribution to hit profile

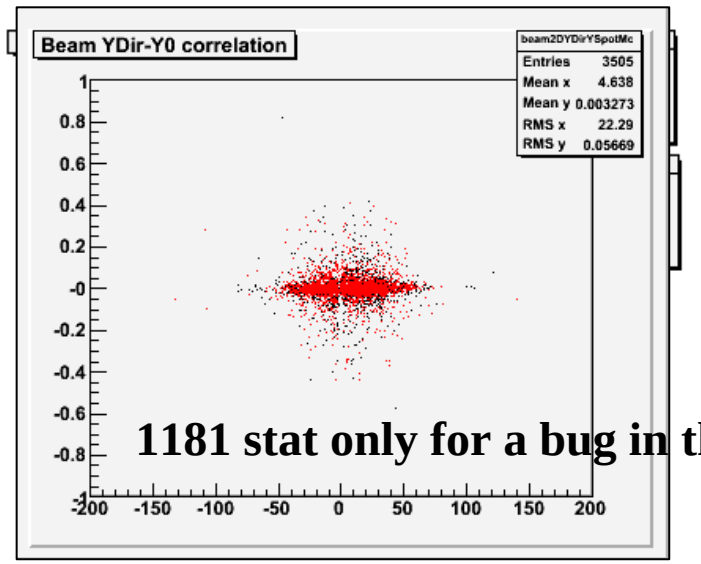
- Rationale
  - We took several runs with full-brem configuration but random trigger
  - I thought I would directly estimate contribution of pile-up events subtracting average hit contribution from such runs
- Data used: full brem runs centre of tower 2
  - Data runs: 1181-1190
  - MC run: 1181-v7r1117p1
  - Random trigger run: 1684
- Event selection
  - All
    - CalEneSum>0 && VtxX0<350
  - Data and MC (not for random trigger)
    - A11
      - VtxNumVertices ==1 && Tkr2LastLayer == 0 && Tkr1FirstLayer >1 && Tkr2FirstLayer > 1 && (VtxStatus&0x0002)>0 && CalCsIRLn>6
    - A21
      - Tkr1LastLayer == 0 && Tkr1FirstLayer > 1 && VtxStatus&0x0001)>0 && CalCsIRLn>6

Data MC beam plots



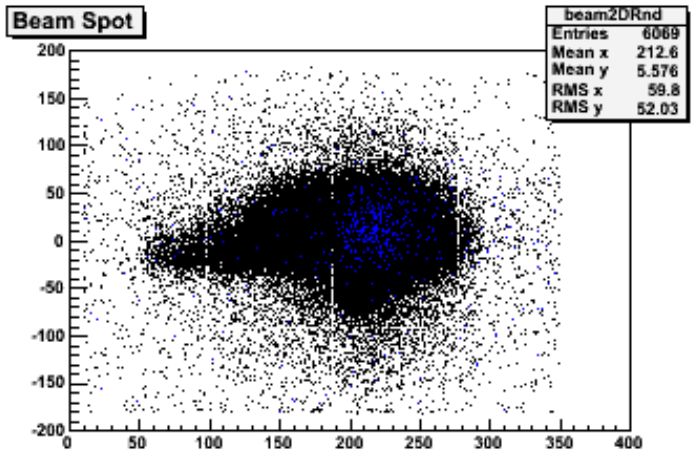


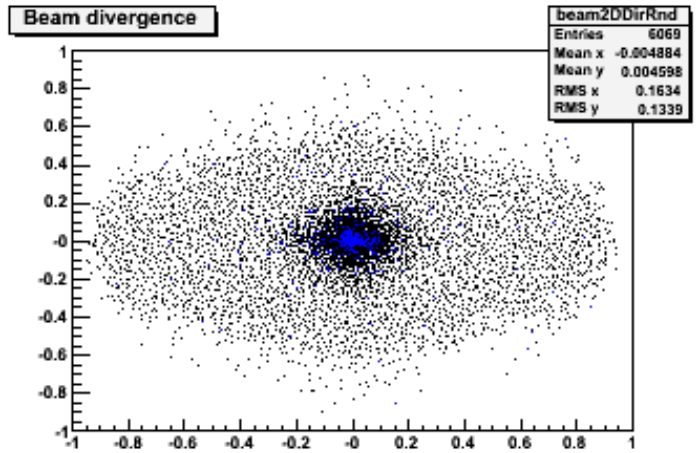


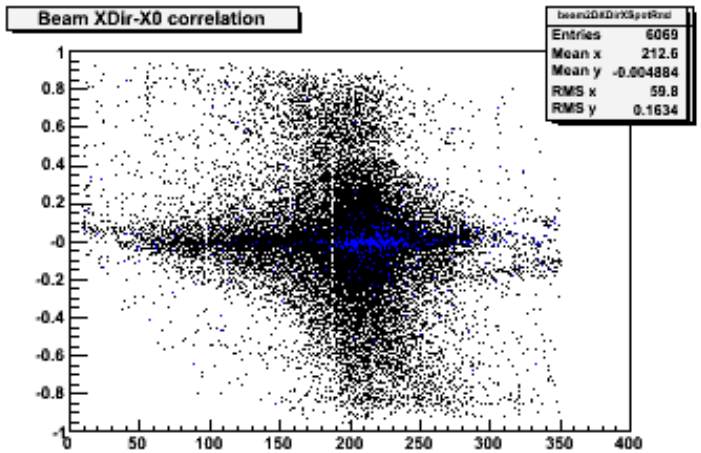


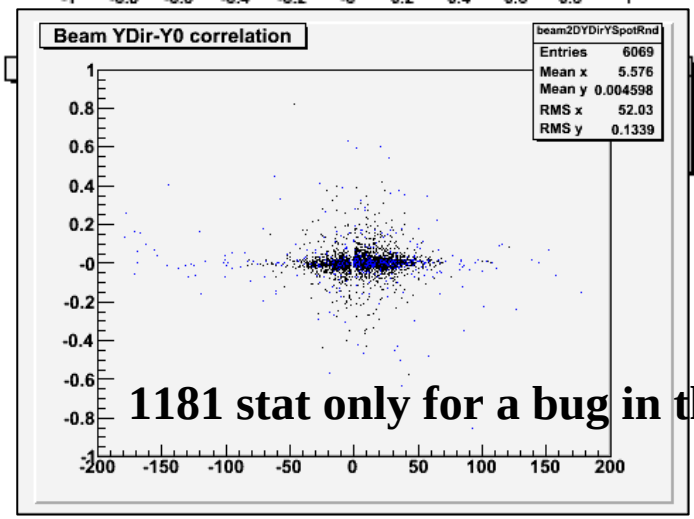
Dead areas are where expected in both data and MC

Data and Random Trigger beam plots





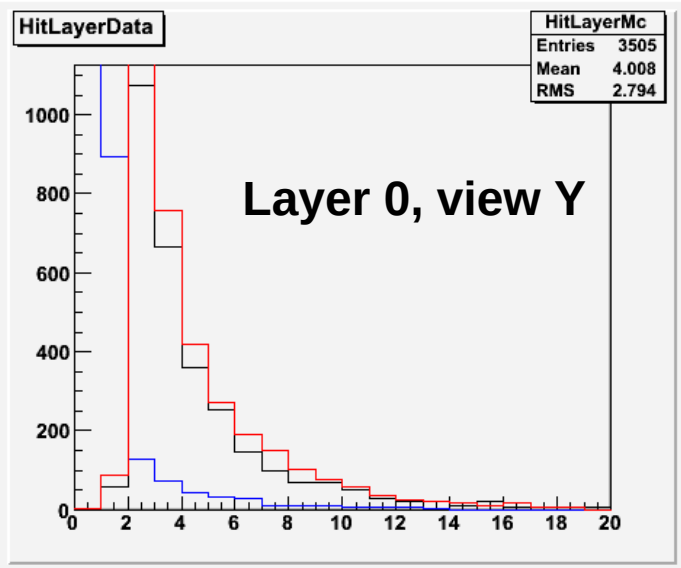


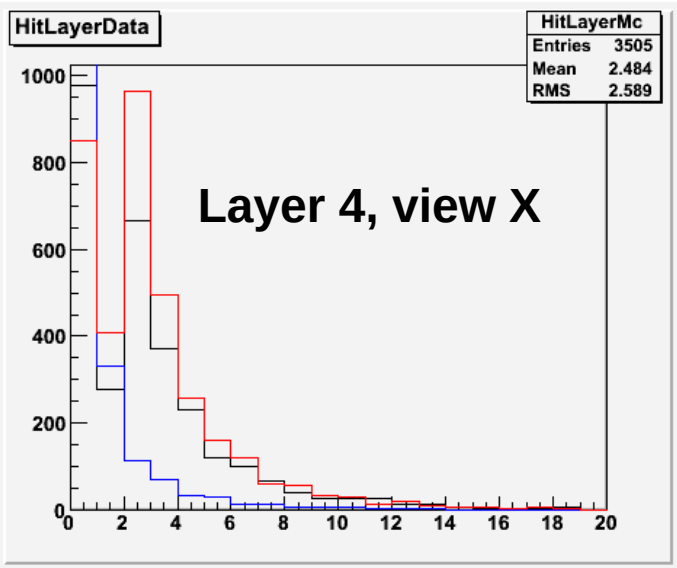


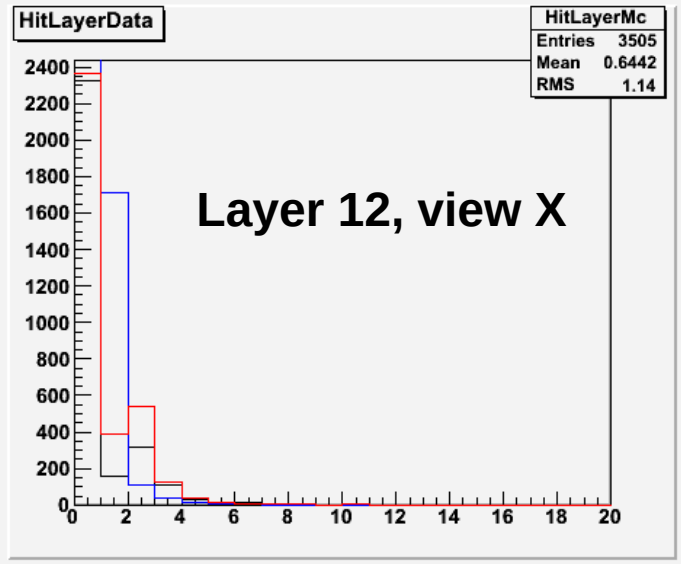
Some residual beam is still there – random trigger was in fact a 1ms delayed trigger scintillator in the main coincidence

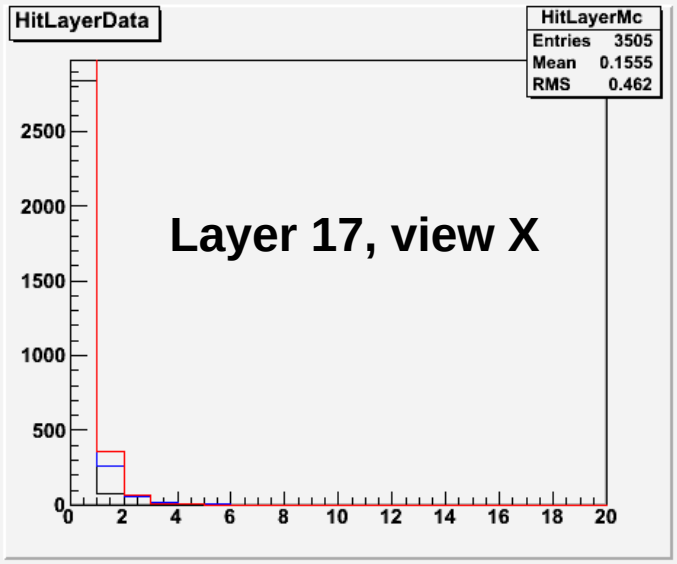
Conservative measurement of residual off-time particles contamination in pile-up rejecter

Hits distributions for some layers

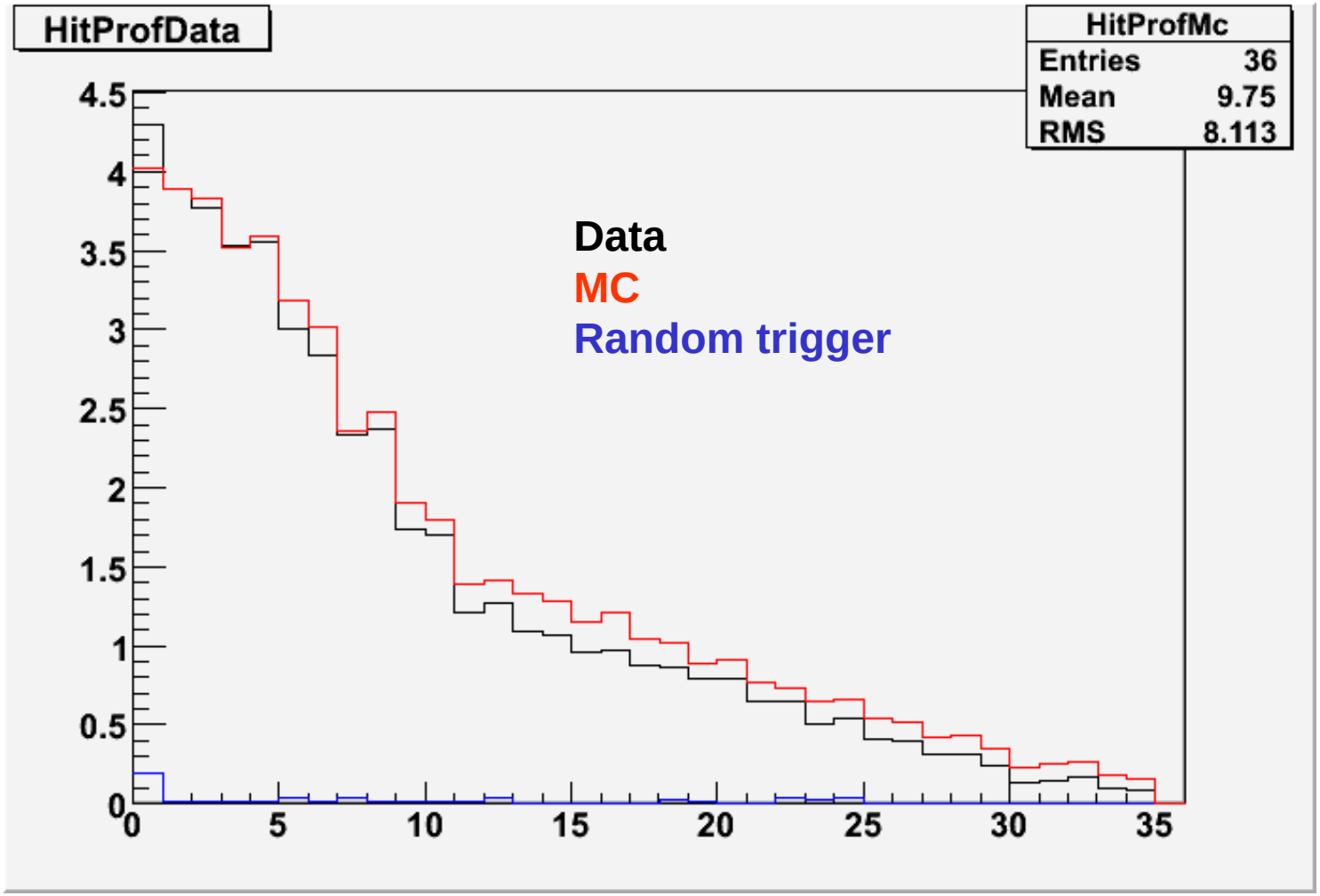




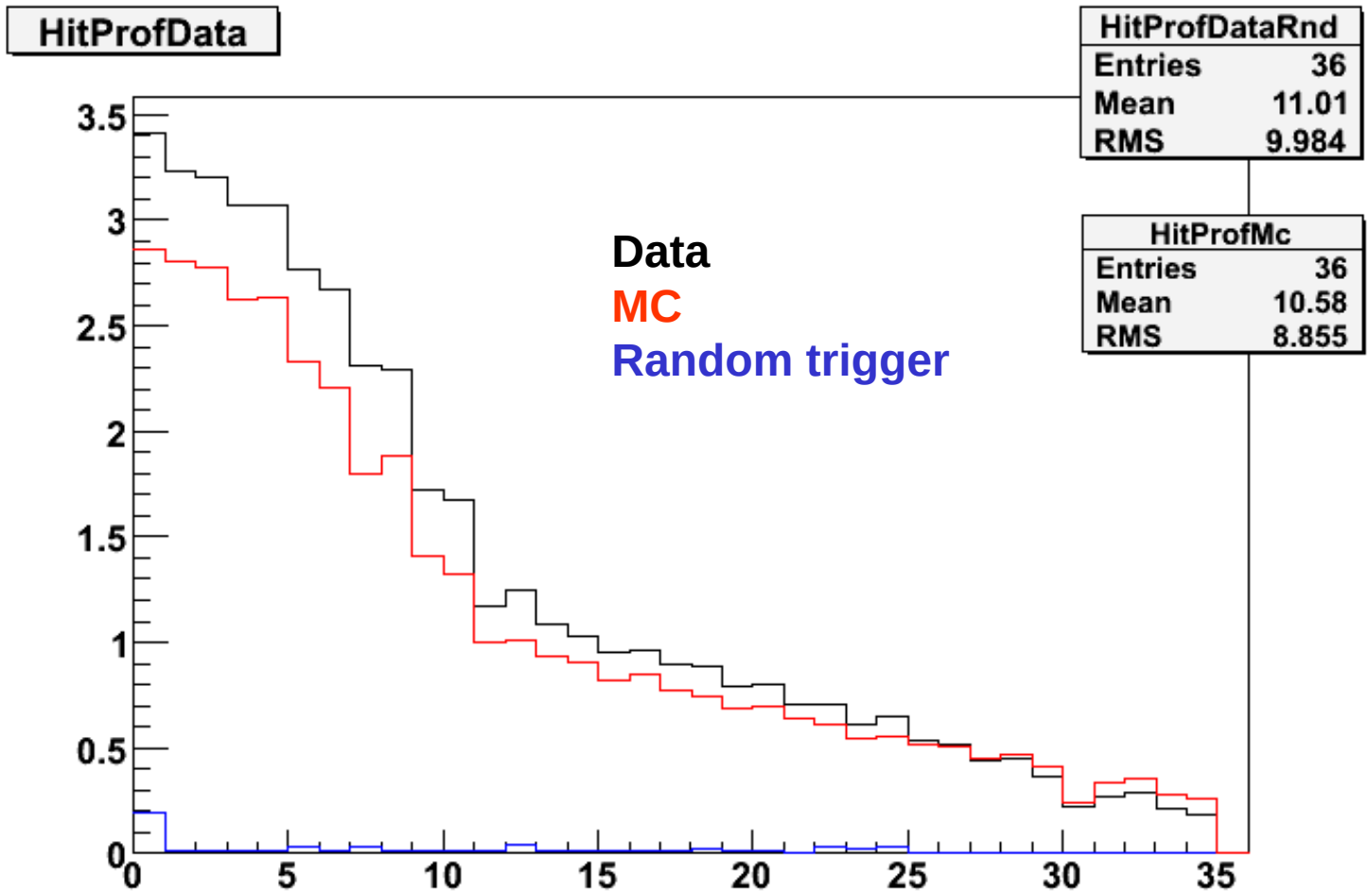




Hit profile for class A.1.1



Hit profile for class A.2.1



Conclusions

- Looked at random trigger full-brem runs for first time
  - thanks Gary for insisting on taking them
  - thanks Carmelo for help with the scripts
- Negligible hit pollution from random trigger runs in full-brem runs
  - Similar conclusion obtained with random trigger electron runs, see Nicola slides from March collaboration meeting
- Still need to understand why we now have more hits since last MC (v7r1117p1)
  - See Nicola summary plots from nov 7 2007
- Should look at CAL variables