Tracking Validation

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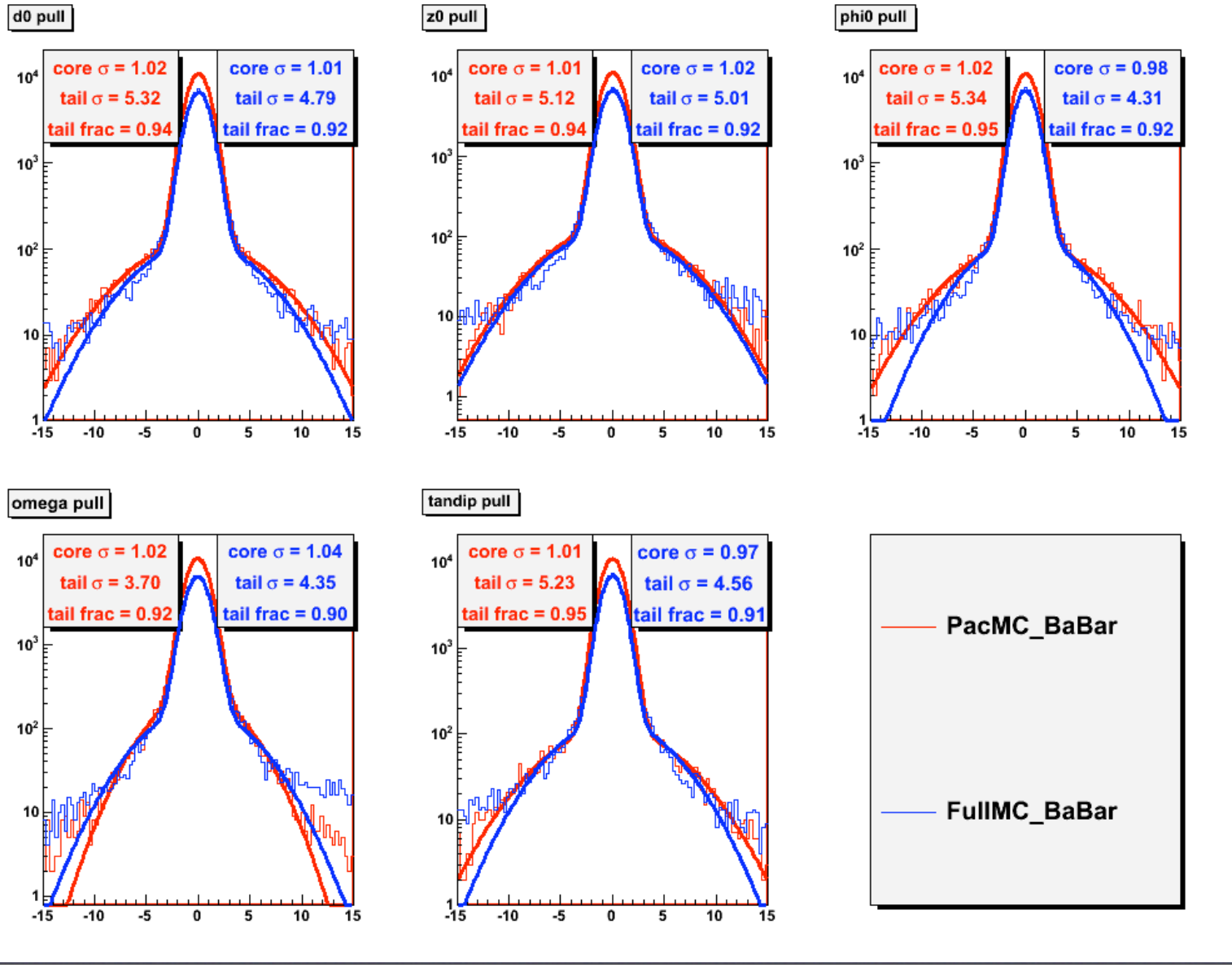
Tracking Studies

- Release FastSim/V0.0.1
- BaBar configuration (pacrat_BaBar.xml)
- Tuples produced by KalTest module
  - linked in with PacMCApp, PacQAApp
  - see PacMC/KalTest_pacrat.tcl for example

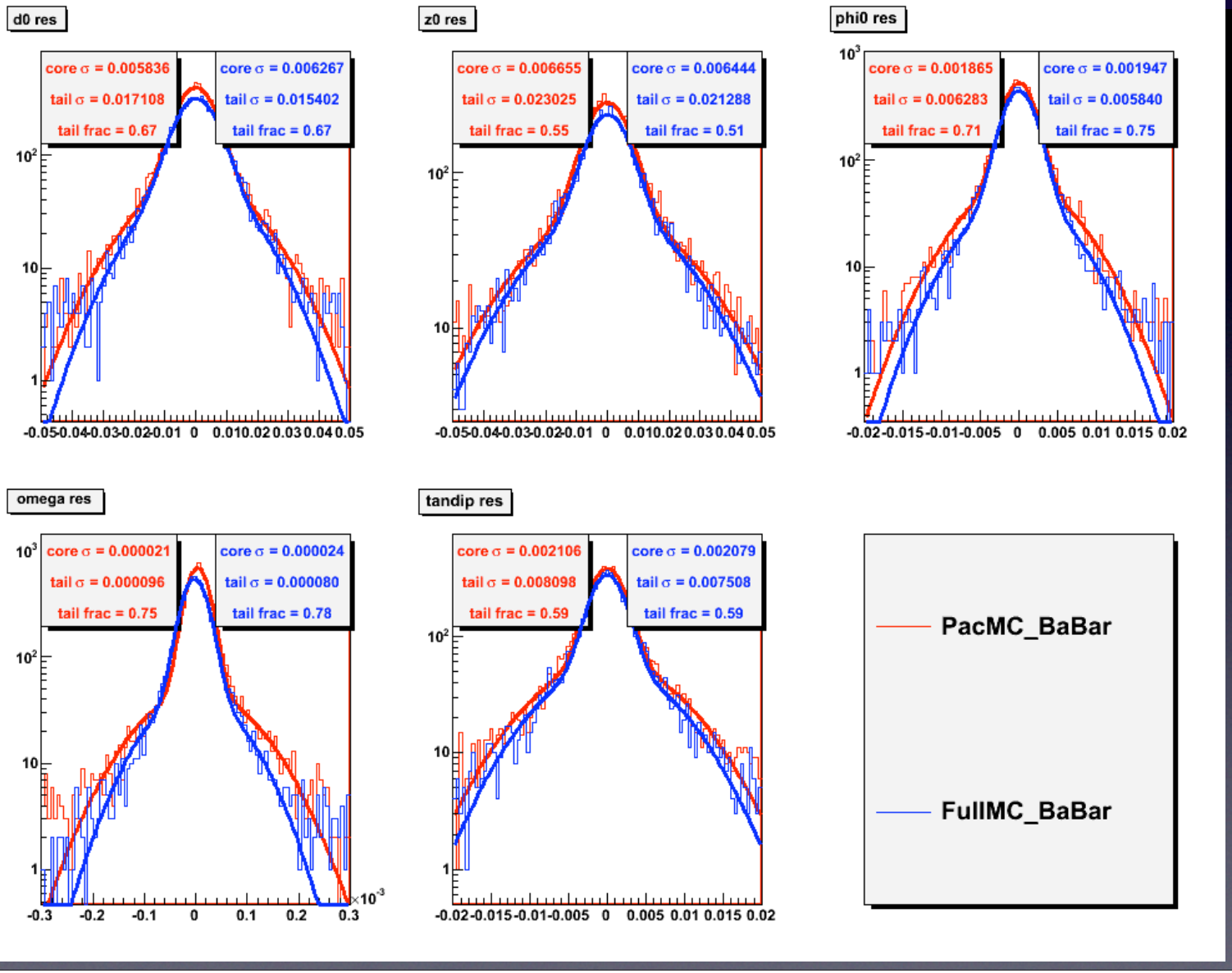
Compare Fastsim, Fullsim

- Simulate 20K $\Upsilon \rightarrow B^0 B^0$ generic events in both
- Look at track parameters, properties
- Just a few interesting results

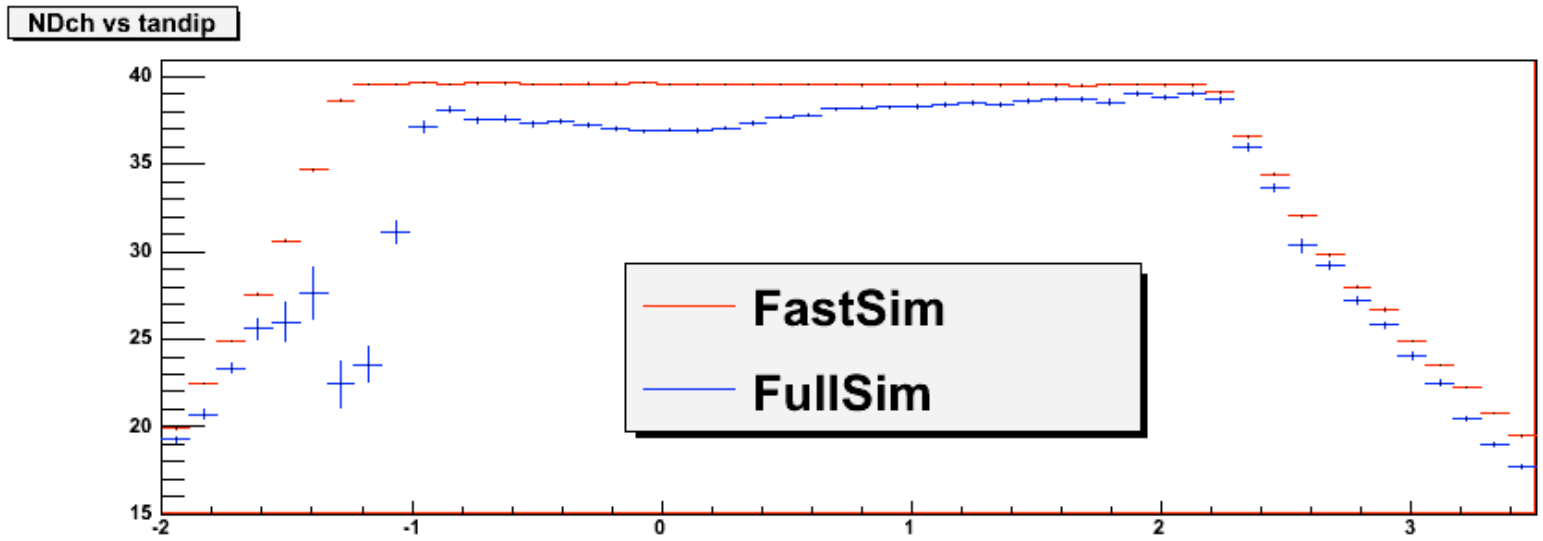
Track parameter pulls

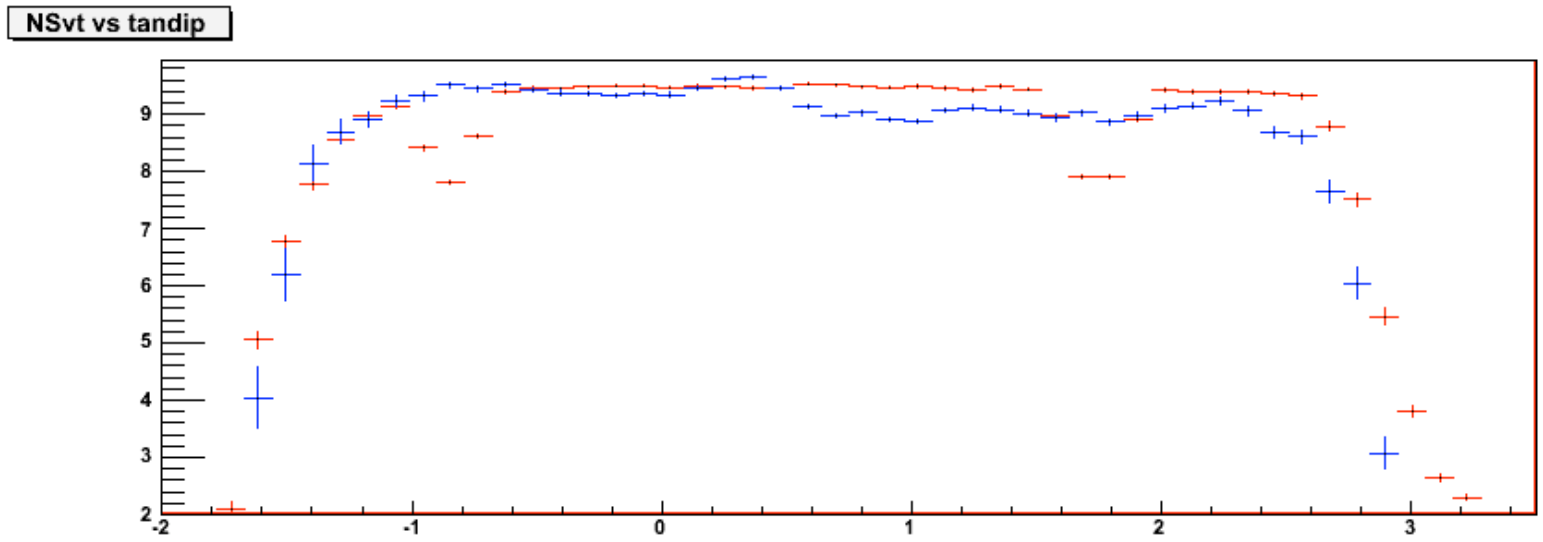


Parameter Resolution



Hits/track in μ-pair events

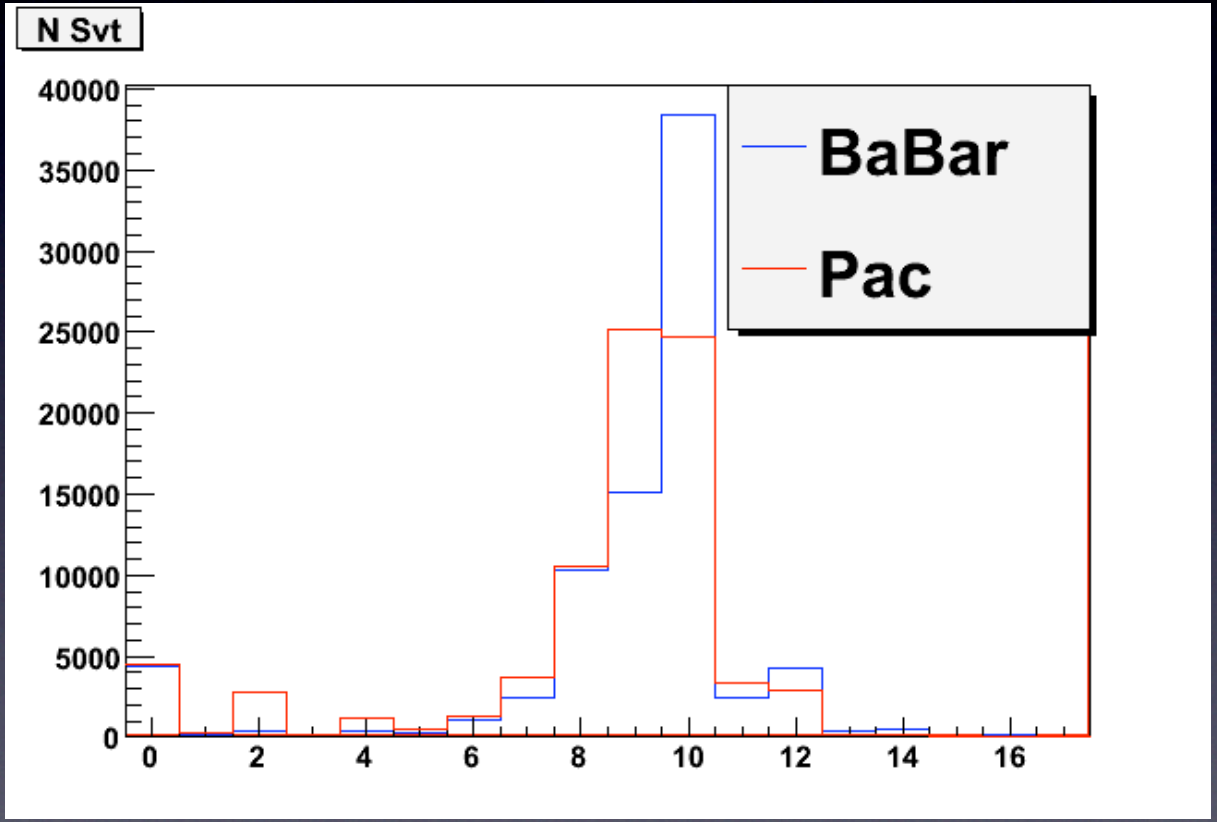




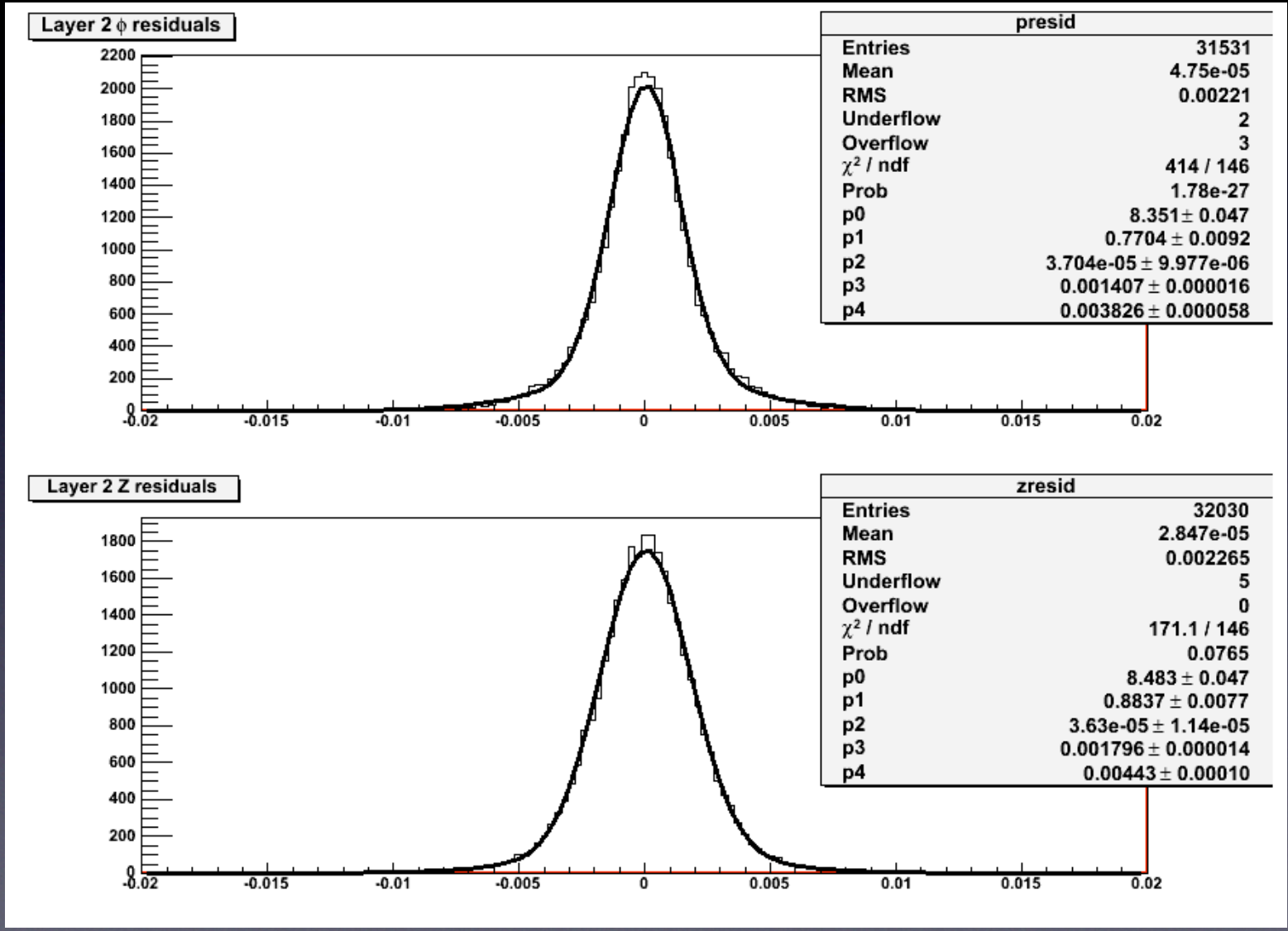
Svt Residual Study

- Look at μ-pair events in BaBar data
  - BPC muons, 2-tracks, P>3GeV, >=10 Svt hits
- Look at reduced residual in Svt layers
  - Distribution is convolution of hit and track resolution
    - dominated by hit resolution
  - Uses POCA between hit and track trajectories
    - distance in space
    - naturally compensates for in-plane

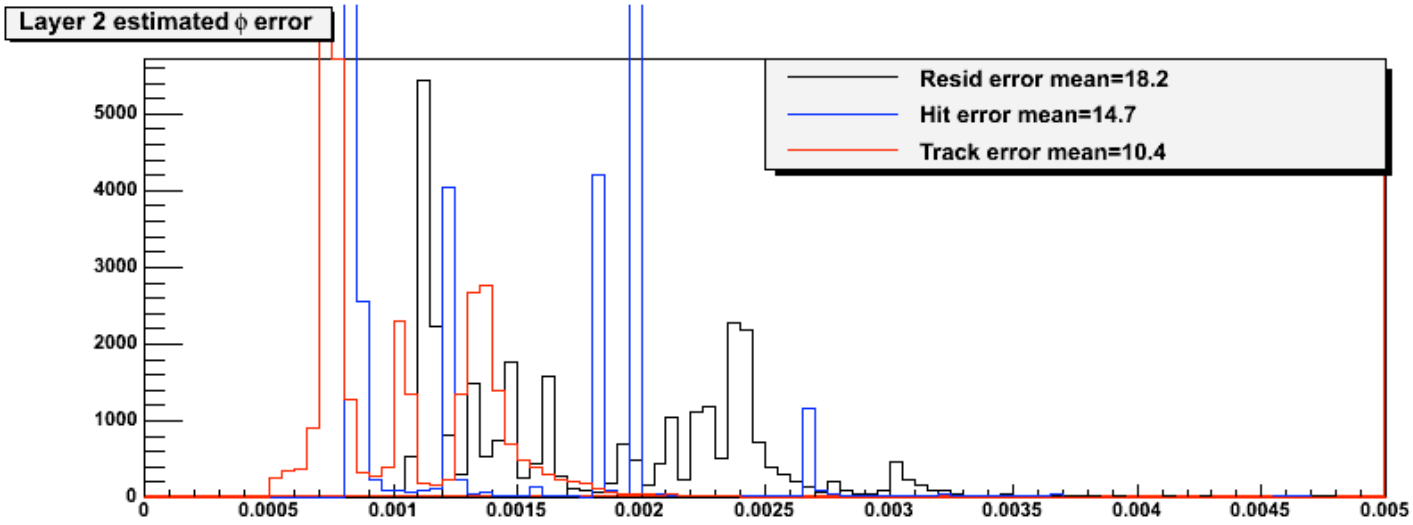
Hit-on-track multiplicity

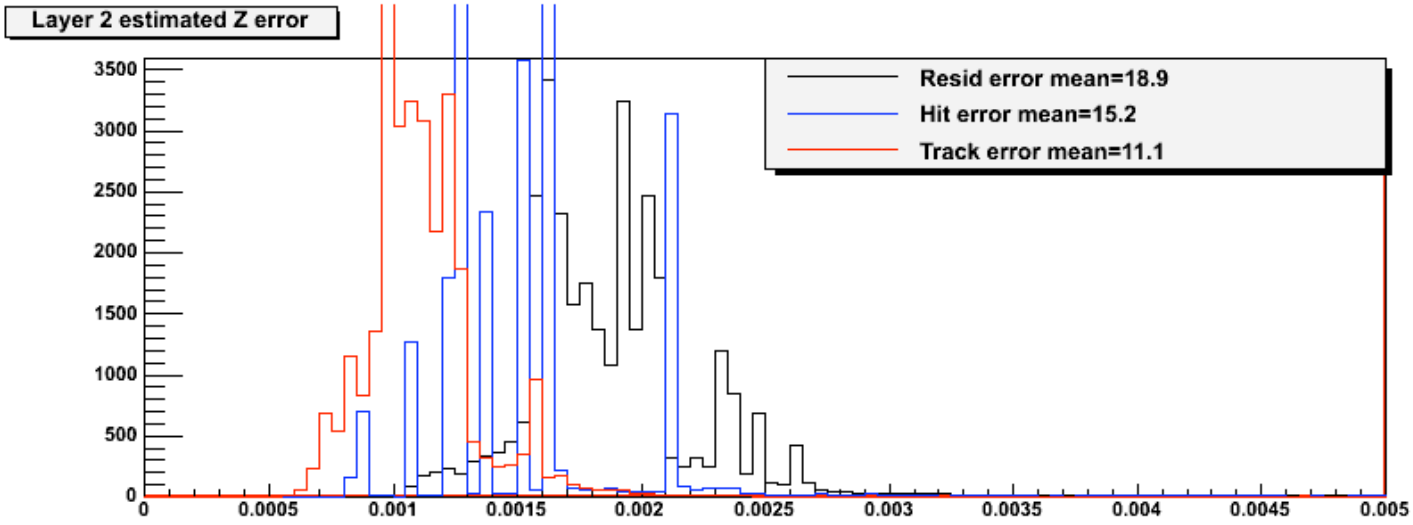


Layer 2 Residual Fits

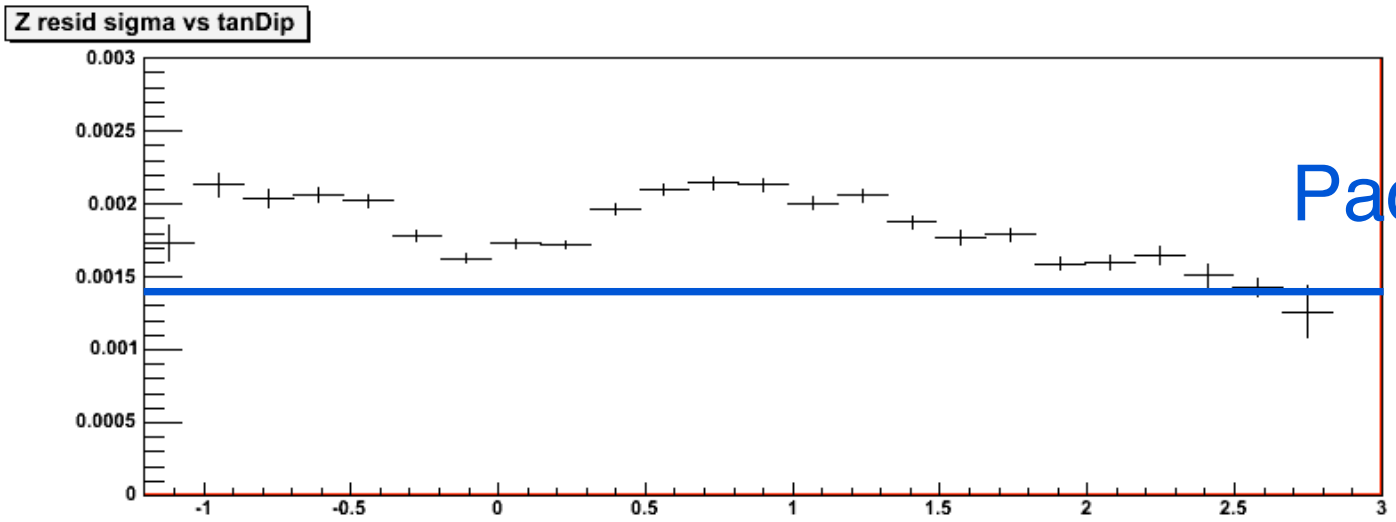


Layer 2 residual errors

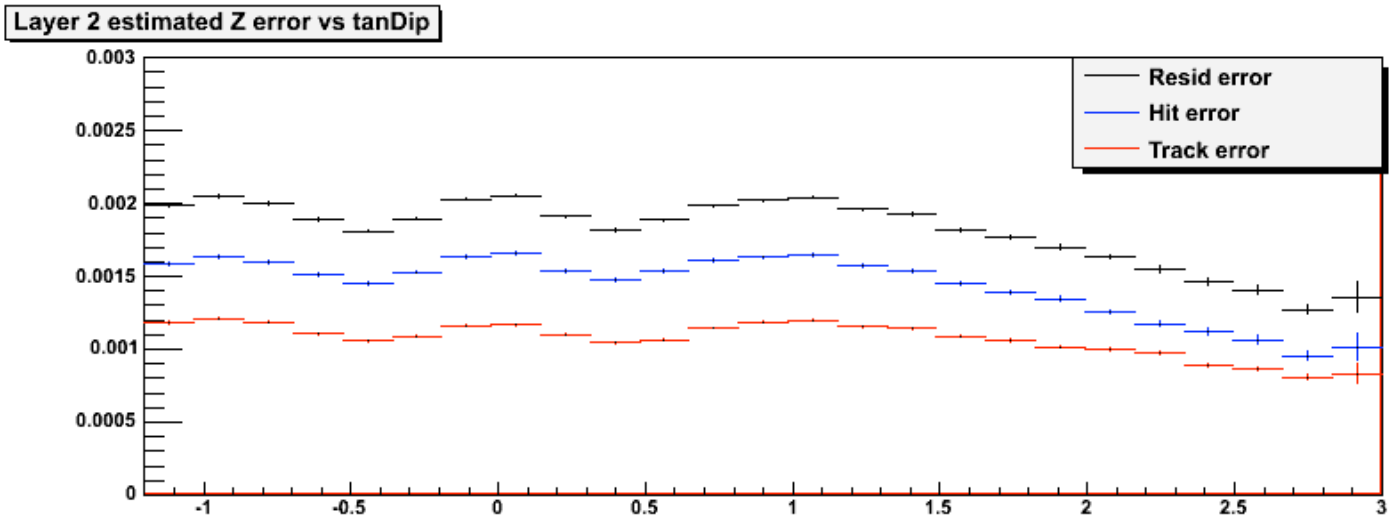




Angular Dependence



PacTrk



Conclusions

- PacSim tracking is reasonable
  - Some problems with Dch, Svt configuration
  - Svt hit resolution could be improved
- Comparisons are straight-forward
  - Add to standard QA tests?