Subject: Lhe Tracking: Kalman Task with STT, worse results
Posted by David Pohl on Sun, 05 Dec 2010 13:04:00 GMT
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Hallo everybody,

when I compare the results after the Kalman Task for the STT and TPC I get worse results with the STT code
according to the reconstruction efficiency and the momentum resolution.

The following parameters have been used:

- Panda Root trunk version, revision 10334
- Geant3
- Box generator: myons with vertex (0,0,0)
- theta = 60°, phi = 0:360°
- one primary track per event, only primary tracks are taken into account in the analyses
- 1e4 events
- Lhe tracking package: ideal track finder + helix prefit + kalman task with correct particle hypothesis
- MVD+STT or MVD+TPC+GEM tracking detectors, new MVD geometry: Mvd-2.1_AddDisks_FullVersion
- STT helix hits are taken
- transverse momentum: 200MeV/c -> total momentum 230.94MeV/c

STT, 86% reconstruction efficiency, sigma 3MeV/c, background after Kalman

The strange thing here is that the Kalman produces a lot of background. The dispersion is larger
than 3*sigma of the helix prefit. One can even do a cut on the difference between helix prefit and
Kalman result to enhance the fit quality. This is to my mind a strong evidence that something in the
Kalman code for the STT does not work properly!

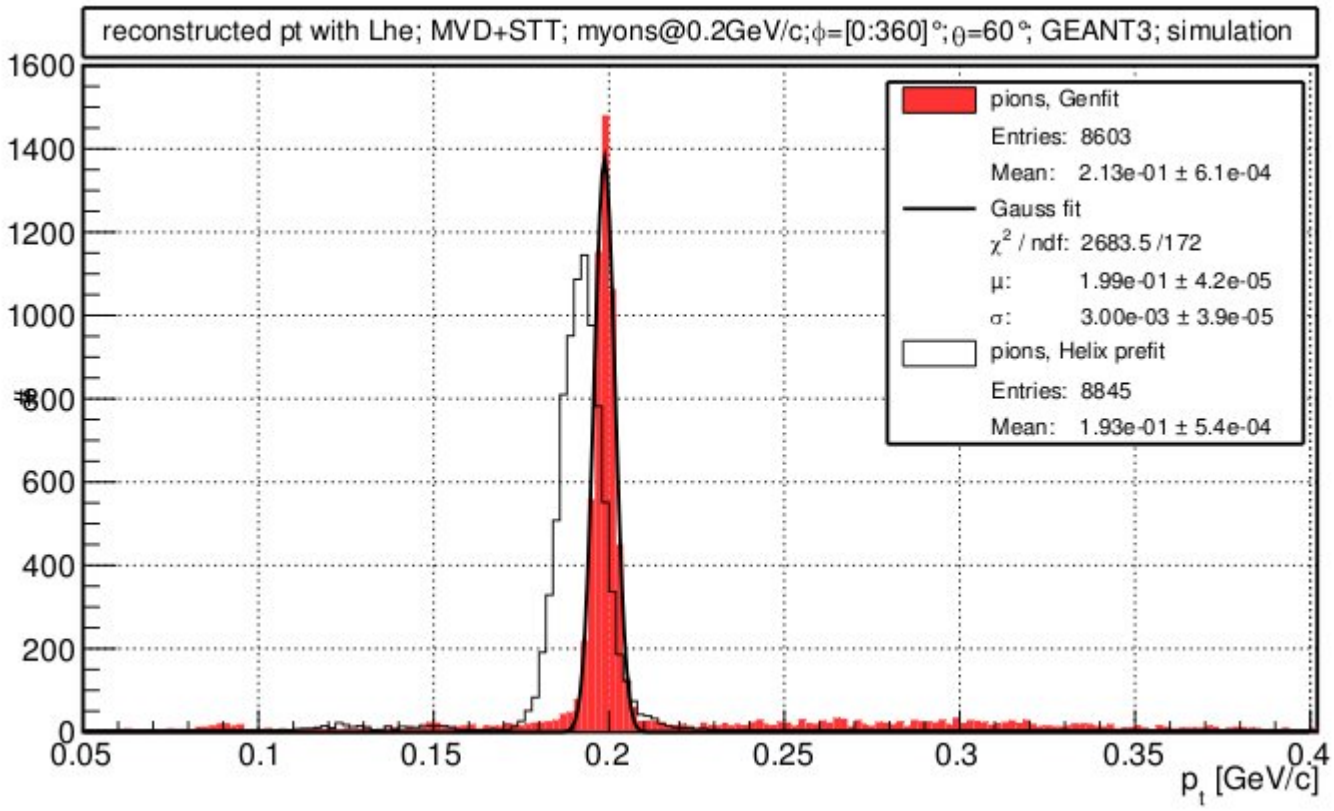
TPC, 93% reconstruction efficiency, sigma 2MeV/c

So I wonder if I do something wrong or this is just normal behavior. The smaller reconstruction efficiency is due to
the Helix fit in the STT? Right? But I still do not understand why the results after the Kalman filter look so much different.

greetings
David

File Attachments

1) pt_reco_stt_200.jpg, downloaded 1750 times



2) pt_reco_tpc_200_myons.jpg, downloaded 1810 times

