Subject: Weird STT reconstruction: efficiency depends on charge
Posted by Andrew Savchenko on Wed, 16 Jan 2008 18:03:18 GMT
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Hello all,

I'm studying the possibility of excited hyperon states decay reconstruction using Straw Tracker. I found a strange behavior while reconstructing particles of different charge:
1) polar angle (theta) is not reconstructed for large amount of events;
2) theta for negatively charged particles reconstructed significantly better than for the positively charged ones.

Just for check and to be sure it is not an error in my code, I generated kaons with BoxGenerator using fixed 1.0 GeV/c momentum, fixed 20 degrees polar angle and free azimuth angle (range from 0 to 360).

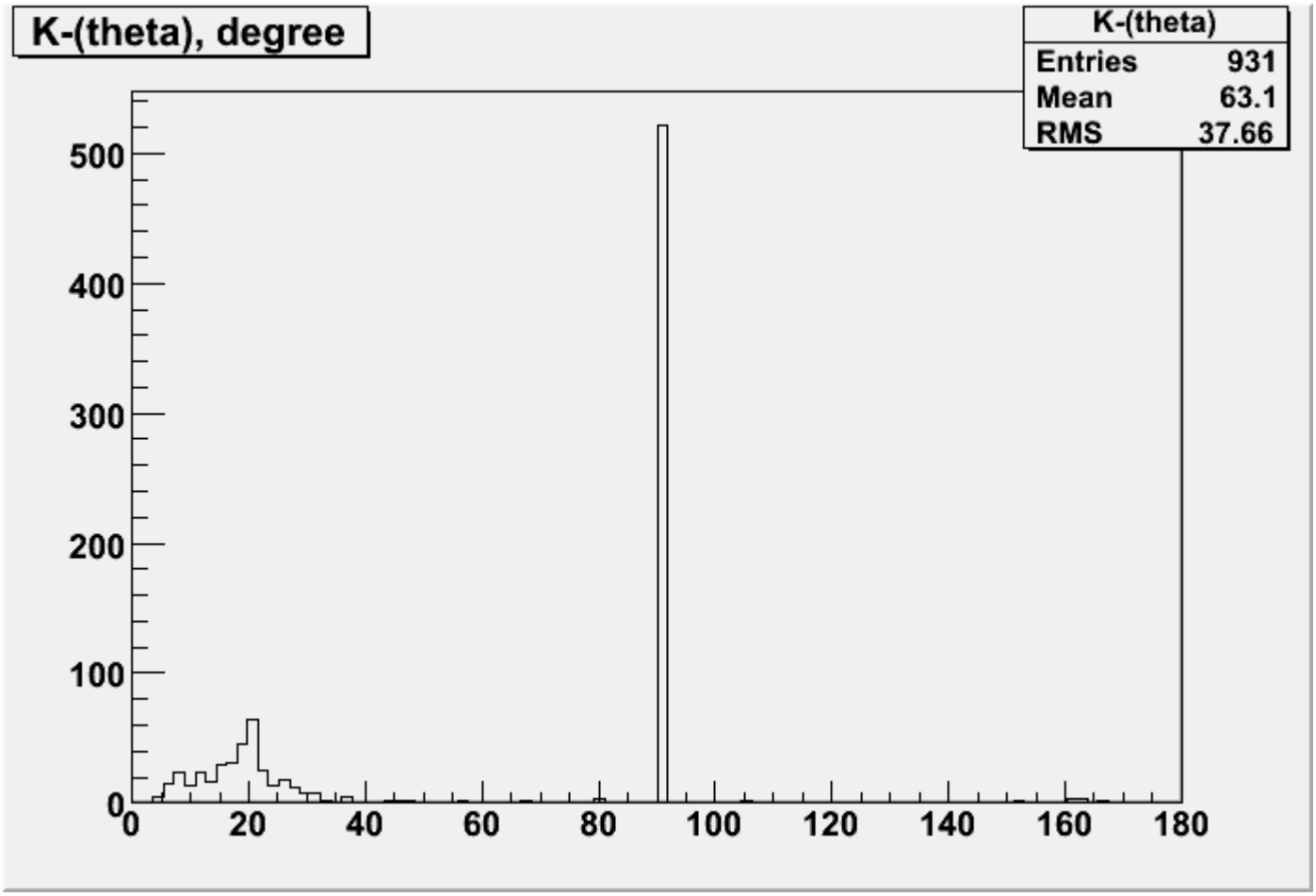
Results are in the attachments. As you can see, there are a lot of events with unknown polar angle (i.e. 90 degrees, it is just default angle in the reconstruction software). Nevertheless in the k- distribution one can see a peak about 20 degrees, but in the k+ distribution there is only some noise present alongside particles with unidentified angles.

So the question is: is this a bug or I'm doing something wrong?
How this can be fixed? I can see no reason why positively charged particles should be identified worse than negative ones.

For simulation and reconstruction standard marco from pandaroot/macro/stt was used (run.C, rundigi.C and runreco.C)

File Attachments

1) k-.png, downloaded 1094 times



2) k+.png, downloaded 1106 times