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Subject: Re: alternative to LHE tracking

Posted by [Radoslaw Karabowicz](#) on Sat, 18 Dec 2010 18:48:26 GMT

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Dear Stefano,

I am showing the values as they come after the PndBarrelTrackFinder. I did not yet try the Kalman. From what I remember for the genfit one needs to provide space points, and for the STT I am not creating the PndSttHelixHits, but use the "original" PndSttHits. If my assumption is wrong, please correct it.

As for the definition of efficiency. It is always a problem and I have always saw it problematic. In the PndBarrelTrackFinderQA the efficiency is defined as a ratio of foundTracks to simulatedTracks as a function of MC momentum, theta or phi angles. In the denominator there are all the MC tracks (primaries and secondaries) that had at least 2 hits in MVD, STT, TPC and GEM (the sum counts) - at this very moment I don't know how was it possible for me to set the limit so low, it should be at 4 hits at least. The criterion for calling a track: foundTrack is based purely on momentum comparison. Presently there are no any hits comparisons (which should in fact be done). The reconstructed momentum matches MC momentum, when all three following conditions are satisfied:

- $\text{abs}(\text{mcMom.Mag} - \text{recoMom.Mag}) < 0.1 * \text{mcMom}$ ;
- $\text{abs}(\text{mcMom.Phi} - \text{recoMom.Phi}) < 1.5$ ; // in degrees, not rads
- $\text{abs}(\text{mcMom.Theta} - \text{recoMom.Theta}) < 1.5$ ; // in degrees, not rads

In fact I just saw that in the PndBarrelTrackFinderQA there is a bug, and I am not checking for the theta angle... oops. Luckily a quick check and rerun confirms the results I've already presented. I will commit the fix on Monday.

yours,  
radek