Subject: Re: No back propagation to IP for V_0 reconstruction
Posted by StefanoSpataro on Sat, 06 Dec 2014 15:53:25 GMT
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I try to expain why I suggested Karin to remove the backward projection.
If you take track parameters from the first point of the track and back propagate them toward the interaction point, if the particle started far from the IP it is possible that the propagation does not converge and the track flies far from IP. In this case Geane will fail, and the track will not be processed.

We have two kinds of backpropagation: the first is in the kalman, since you want to consider in the fit the first detector hit (if you start the kalman filter from the first hit, such hit will not be used by the kalman since of course the track will sit there. If you start a bit far, like in the I.P., then you can use also that hit).
The second is in the PndPidCorrelator, since you want to have the track parameters where probably the reaction occurred (the IP), and not in the first hit (MVD in general). This is due to the fact that most often all the tracks come from the IP.

Then, in case of lambda skipping the back propagation improved the efficiency, sicne all these rejected tracks were properly computed. In case of K0S maybe they are closer to the IP and the backward propagation does not affect so much the global efficiency. moreover, if you start the kalman from the first hit, then your efficiency will be a bit poorer due to the mising hit in the fit. In case of lambda at the end you gain anyway, in case of KoS maybe you don't gain and you just loose.

I hope now the global scheme is more clear. we need some systematical study, I have some idea on how to improve for the kalman backpropagation, but I need some Guinea pig ... :)