Subject: Backpropagation in Kalman Filter
Posted by StefanoSpataro on Wed, 08 Apr 2015 12:51:02 GMT
View Forum Message <> Reply to Message

Dear all,
one of the problems of Kalman Filter for secondaries is the backpropagation of the track parameters from the first point of the track to the Interaction Point, before the fit. This back propagation can fail in case of secondaries which are produced far from the IP, decreasing the reconstruction efficiency. For this reason in the past it was suggested to people doing analysis of lambda channels to switch off such back propagation in the PndRecoKalmanTasks of the reco macro.

An update was done, and now track parameters are back propagated of 2 cm before the first hit, to avoid the IP backpropagation. This procedure should be faster, works also for particles not comiing from the IP, it should not fail, and the results for primaries are comparable to the old version.

By default you will use this option automatically just updating your trunk and recompiling. Of course you are free to switch it off (setting a negative distance) and to switch on the IP back propagation, as before.

This change does not affect the PidCorrelator but only the Kalman Filter. This means that you could have the same problem at the pid level and there you should still switch off the back propagation.