Subject: Test of kinematic/vertex fitters
Posted by Klaus Götzen on Wed, 04 Sep 2013 14:27:48 GMT
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Dear tracking experts,

I have a question related to tracking, and I'm sure that somebody of you can give me some suggestion.

What I want to do is to check whether the vertex/kinematic fitters in Rho are working properly. Therefore I'd like to feed them with tracks, which are smeared based on the true tracks from MC and have a reasonable covariance matrix.

I already tried it with a 7x7 (4-vector/position) covariance, only setting the diagonal elements to some values and smearing the 7 components of the candidates accordingly by this diagonal matrix. Unfortunately this didn't work (the probability distributions didn't look as expected, even worse than for full MC tracks). This has perhaps to do with missing correlations (=covariances) between the kinematic components, which implicitely are used by the fitter, e.g. helix shapes etc.

Therefore finally my quesion to you: Does somebody of you have an idea, how I can create reasonably smeared toy MC tracks together with a corresponding 'artificial' covariance matrix to reach my goal? Maybe starting from a 5x5 helix (diagonal?) covariance matrix and smeared tracks in the 5 parameters helix domain, which then is converted to the 7-parameter domain?

Best regards and thanks for any feedback,
Klaus