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Subject: Tracking uncertainties

Posted by [Ralf Kliemt](#) on Thu, 11 Jul 2013 14:07:23 GMT

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Hi Lia, Gianluigi and tracking experts.

On the last Panda meeting I talked with Gianluigi about the issue of too low chisquare values in particle fitting. We agreed on the strategy to plot differences to monte-carlo, pull distributions and the uncertainty distributions.

You'll find attached a pdf with such distributions from 10k Psi(3770) -> J/Psi pi+ pi -> e+ e- pi+ pi- events.

First page is the fourmomentum. Here only the energy pulls are a bit wide. Second page has the position variable. Residuals look OK but the pulls are too small.

So I went some steps back and check the first track Parameters.

This is a bit tricky as I need to get the MC truth propagated to the actual region of the first parameter. I did so with Geane and PropagateToPlane. As Plane I use the same plane as it is stored in the reconstructed parameter.

The last row on the second page and the third page show these distributions. However, everything looks awful.

I guess I made a mistake somewhere.

I put an update to svn and also the macro I use to create these plots. You may use any of your own simulations as it only needs measured charged particles and the mc truth.

Hope to find answers.

Ralf

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## File Attachments

- 1) [testParticles-print-params.pdf](#), downloaded 359 times
  - 2) [testParticles.C](#), downloaded 422 times
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