
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 mtoe-carlo, pull distributions and the uncertainty distributions.

You'll find attached a pdf with such distributions from 10k $\Psi(3770) \rightarrow J/\Psi \pi^+ \pi^- \rightarrow e^+ e^- \pi^+ \pi^-$ 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 aweful.

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

File Attachments

- 1) [testParticles-print-params.pdf](#), downloaded 529 times
- 2) [testParticles.C](#), downloaded 609 times
