Subject: Re: Problem with mass constraint fit for two gamma
Posted by Lu Cao on Mon, 30 Jun 2014 14:51:42 GMT

Hi Donghee and all,

this situation is the same in reconstructing pi0->gamma gamma, as I reported before.

In the fast sim, the invariant mass spectrum of the combination of two photons has a "nice" distribution peaked at pi0 mass, so it's understandable that the mass constraint fit can work as expected. In the full sim, the invariant mass distribution is filled with a significant "background" which may course problems of convergence in mass constraint fit, e.g. too small chi2, prob squeezed to 1.

Since the PndKinFitter:AddMassConstraint() works fine for charged particles as well as the neutral in the fast sim, I'd like to guess the tool itself has no problem but to understand why the two-photon invariant mass distribution has so much "background" in the full sim. Is there any possible incorrect combinatorics, or where're the extra photons coming from?

Donghee, could you also show the gg invarit mass spectrum in your case?

Best regards,
Lu

File Attachments
1) mass_two-photon.png, downloaded 376 times

π^0 mass distribution (all)

Fast_best
Full_ideal

counts

GeV/c^2