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Subject: [FIXED] Problems with PndKinFitter::AddMassConstraint  
Posted by [StefanoSpataro](#) on Mon, 05 May 2014 15:54:34 GMT

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Dear all,

most probably the "analysis" topic would be better, but since I did the tests with fast sim then I report here.

I run the standard  $\psi(2S) \rightarrow J/\psi \pi^+ \pi^-$  which you can find in macro/scrut simulation macros. I modified the analysis macro (ana\_ste.C) in order to have montecarlo ID and to plot some variables from the fit. The analysis macro is attached.

If I take my  $J/\psi \pi^+ \pi^-$  combinations ( $\psi$ ) and put a 4 constraint fit:

```
PndKinFitter kinfit(ψ2s[j]);  
    kinfit.Add4MomConstraint(ini);  
kinfit.Fit();
```

I have decent results:

You can see the original invariant mass, the fitted invariant mass (RMS from 48 MeV to 50 KeV),  $\chi^2$  peaked around 3 (4 degrees of freedom), flat probability between 0 and 1.

But if I try to apply a mass constraint fit to only the  $\mu^+ \mu^- (J/\psi)$ :

```
PndKinFitter mfitter(jψ[j]); // instantiate the PndKinFitter in ψ(2S)  
mfitter.AddMassConstraint(m0_jψ); // add the mass constraint  
mfitter.Fit(); // do fit
```

Then the results are not so fine:

Invariant mass before and after the fit (RMS from 46 MeV top 6 MeV, which is a big value considering that it is a mass constraint fit and it should be a delta, 1 NDF),  $\chi^2$  peaked at very low values, and prob not flat.

I would say tht the AddMassConstraint function has some problems.

## File Attachments

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- 1) [ψ.gif](#), downloaded 727 times
  - 2) [jψ.gif](#), downloaded 775 times
  - 3) [ana\\_ste.C](#), downloaded 423 times
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