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) -> 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(psi2s[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), chi2 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(jpsi[j]);  // instantiate the PndKinFitter in psi(2S)
mfitter.AddMassConstraint(m0_jpsi); // add the mass constraint
mfitter.Fit();      // do fit
```

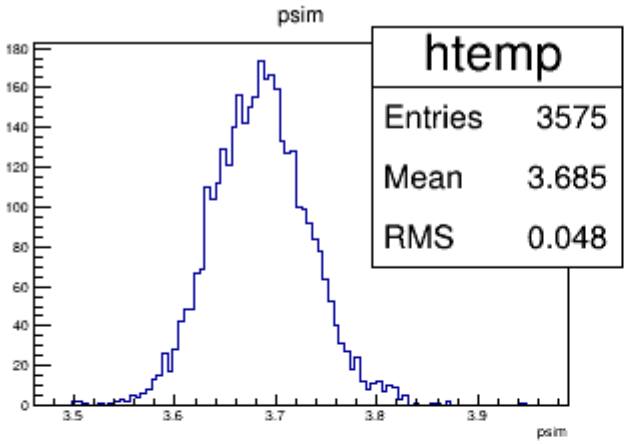
Then the results are not so fine:

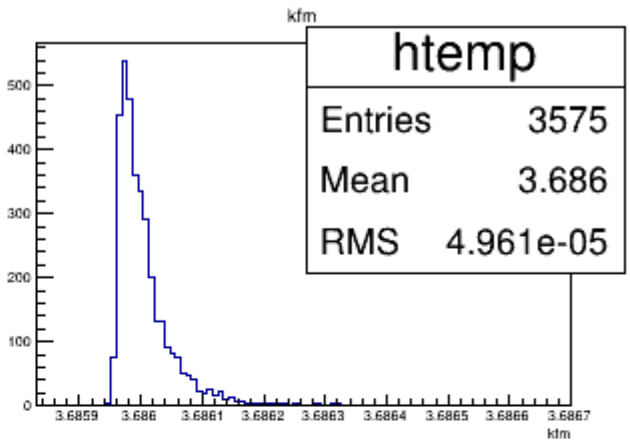
Invariant mass before and after the fit (RMS from 46 MeV top 6 MeV, which is a big value considering that it is a mass constraint fit and it should be a delta, 1 NDF), chi2 peaked at very low values, and prob not flat.

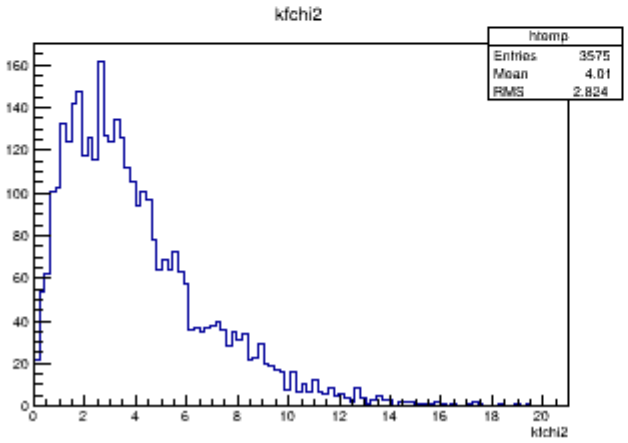
I would say tht the AddMassConstraint function has some problems.

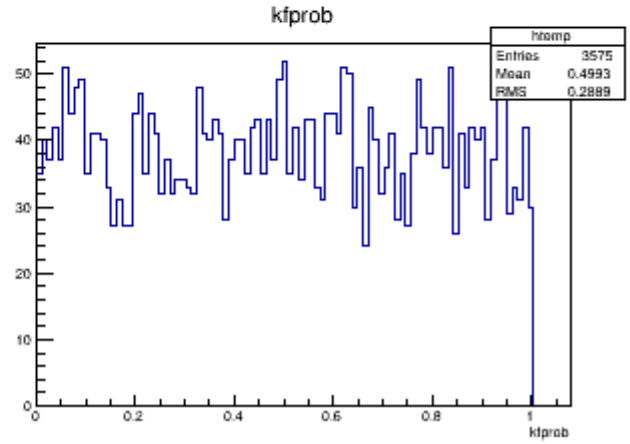
File Attachments

1) psi.gif, downloaded 1668 times

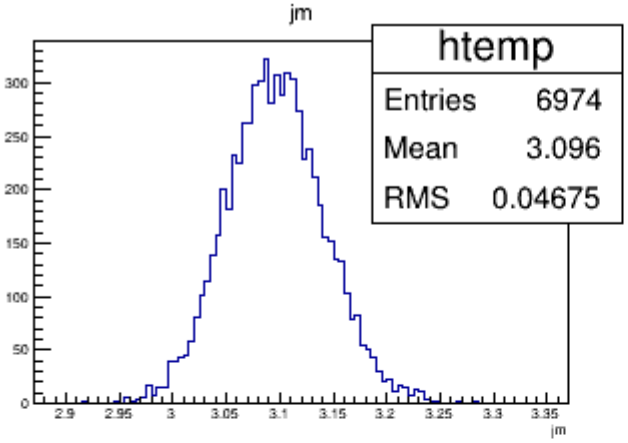


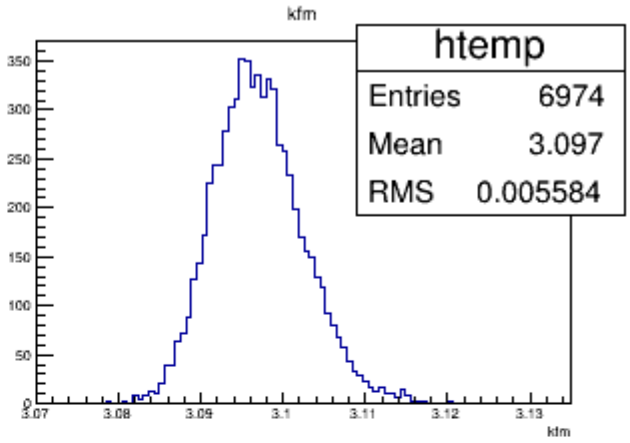


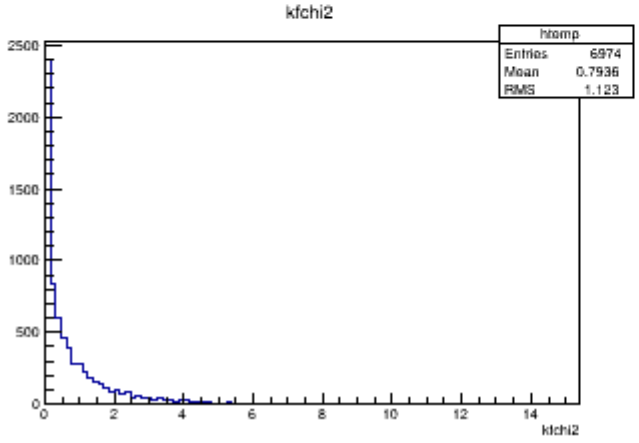


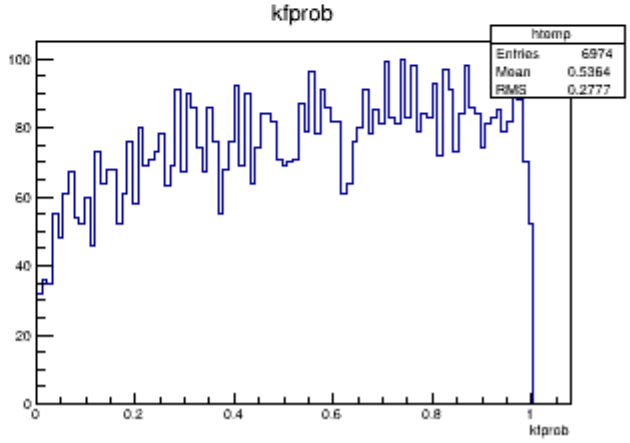


2) jpsi.gif, downloaded 1728 times









3) ana_ste.C, downloaded 710 times