
Subject: invariant mass

Posted by [ForamShah](#) on Tue, 25 Mar 2014 09:26:21 GMT

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hello,

i want to know the exact method to find invariant mass and for that what changes i have to make and where(simulation file ,analysis file...)??

Subject: Re: invariant mass

Posted by [StefanoSpataro](#) on Tue, 25 Mar 2014 09:28:14 GMT

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Please read the documentation in wiki:

<https://panda-wiki.gsi.de/foswiki/bin/view/Computing/PandaRootRhoTutorial>

Subject: Re: invariant mass

Posted by [Elisabetta Prencipe \(2\)](#) on Tue, 25 Mar 2014 09:43:25 GMT

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Dear Foram Shah,

just one comment more to the Stefano reply, to make your life easier with PandaRoot simulations: if you are using the macros of the tutorial, what basically you have to change is the beam momentum (beginning of the simulation macro: make sure it is properly set up for the production of the X(3872)), and you should change also the file.dec where you set up the decay file of your interest (always in the simulation macro). I assume here you will use EvtGen as MC generator. Then, the digi-, rec-, pid-, macros can be run just like they are in the tutorial. Of course, you have to change the analysis macro of the tutorial: it is right now set up for the example provided in the page that Stefano pointed you: $p\bar{p} \rightarrow \psi \rightarrow J/\psi \pi^+ \pi^-$. If you wish to try $p\bar{p} \rightarrow X(3872) \rightarrow J/\psi \pi^+ \pi^-$, it is not so much change, in the end. The analysis macro shows you how to calculate invariant mass, momentum, how to use the fitters.

cheers, Elisabetta

Subject: Re: invariant mass

Posted by [ForamShah](#) on Tue, 25 Mar 2014 09:57:37 GMT

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hi,

in the link which u have send to me it is written

In order to reduce combinatorics, a cut on the invariant mass can be applied very easily by defining a mass selector with

center of selection window

v

```
RhoMassParticleSelector *jpsiMassSel=new RhoMassParticleSelector("jpsi",3.096,1.0);
```

^

full width of window

how to decide this center and width & is this the only cut for invariant mass

Subject: Re: invariant mass

Posted by [Elisabetta Prencipe \(2\)](#) on Tue, 25 Mar 2014 10:06:17 GMT

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Hi Foram (my miseducation: I hope this is your first name),

the window around the nominal mass of J/psi it's up to you. In that example the window is pretty large: +/- 1 GeV/c². You can try 0.1 or 0.2, for instance. You will learn by doing.

cheers, Elisabetta
