
Subject: getting run_rutherford to calculate eta parameter [SOLVED]

Posted by [Raphael Cervantes](#) on Wed, 14 Nov 2012 20:18:02 GMT

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Hi all,

I would like to request help in modifying fairroot to give me information about $\eta = -\log(\tan(\theta/2))$, which is a very common parameter for understanding detector physics. Moreover, I think it should calculate eta by default, in the same way that it calculates phi and theta by default.

To give more background:

The way fairbase is in the repository, if you do

```
root fairroot/examples/rutherford/macros/run_rutherford.C
```

the output is contained in fairroot/examples/rutherford/macros/data/test.mc.root.

If I open the root file

```
root data/test.mc.root
```

```
TBrowser j
```

Then you will see the attached image. I would like to modify fairroot to include information about eta as one of the leaves of FairRutherfordPoint. Can someone tell me how to do that? Would I need to make changes to FairRutherfordPoint? FairMCPoint? etc...

I hope I'm making myself clear. All help is greatly appreciated

-Raphael

File Attachments

1) [test.mc.root.png](#), downloaded 310 times

Object Browser

Browser File Edit View Options Tools

Files

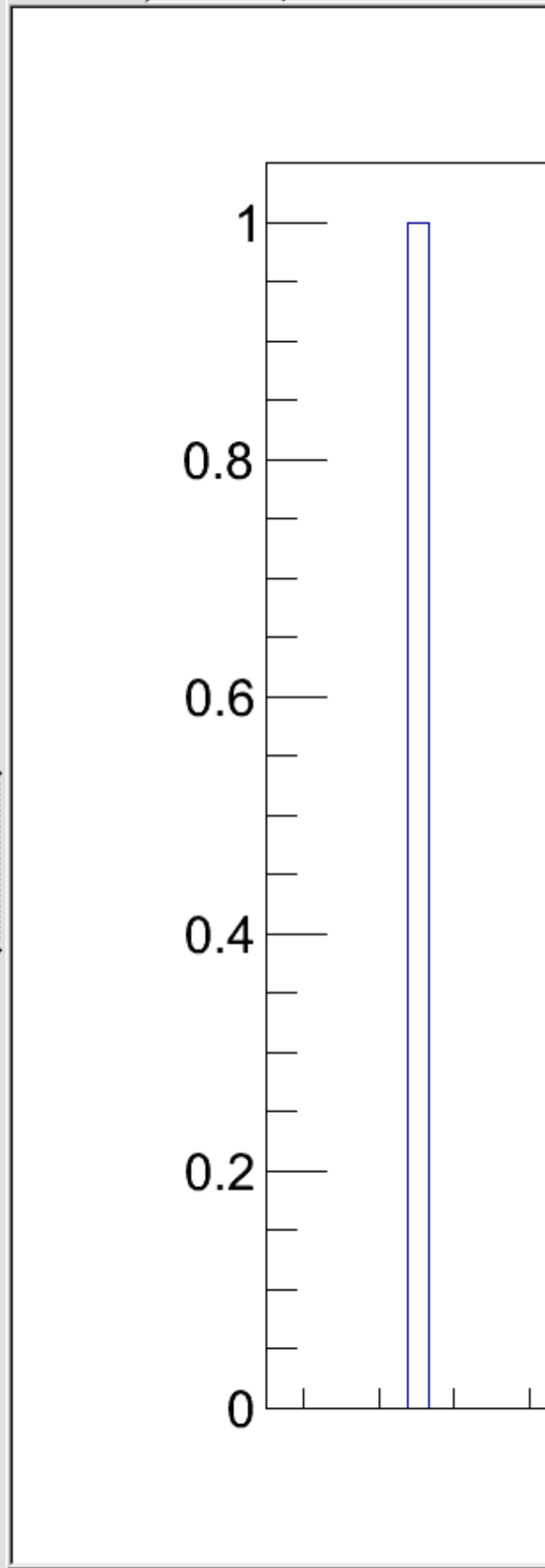


Draw Option:

- root
- PROOF Sessions
- ROOT Files
 - data/test.mc.root
 - cbmroot;1
 - BranchList;1
 - FileHeader;1
 - cbmsim;1
 - MCTrack
 - FairRutherfordPoint
 - FairRutherfordPoint.fUniqueID
 - FairRutherfordPoint.fBits
 - FairRutherfordPoint.fLinks
 - FairRutherfordPoint.fPersistenceCheck
 - FairRutherfordPoint.fVerbose
 - FairRutherfordPoint.fDefaultType
 - FairRutherfordPoint.fTrackID
 - FairRutherfordPoint.fEventId
 - FairRutherfordPoint.fPx
 - FairRutherfordPoint.fPy
 - FairRutherfordPoint.fPz
 - FairRutherfordPoint.fTime
 - FairRutherfordPoint.fLength
 - FairRutherfordPoint.fELoss
 - FairRutherfordPoint.fDetectorID
 - FairRutherfordPoint.fX
 - FairRutherfordPoint.fY
 - FairRutherfordPoint.fZ
 - FairRutherfordPoint.fRadius
 - FairRutherfordPoint.fPhi
 - FairRutherfordPoint.fTheta
 - @size
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 - cbmroot
 - cpractice
 - eic-smear
 - eicroot
 - fairbase
 - fairroot
 - fastjet-3.0.3
 - h1dummy

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Canvas_1 Editor 1



Command

Command (local):

Subject: Re: getting run_rutherford to calculate eta parameter
Posted by [Radoslaw Karabowicz](#) on Wed, 14 Nov 2012 21:59:56 GMT
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Dear Raphael,

If you need some extra variable to be written to the root file,
then:

1. you have to edit FairRutherfordPoint.h and add the variable
in question to the private members, f.e.:

```
Float_t fEta;
```

2. edit the FairRutherfordPoint.cxx and set the value
of the variable in the constructors, preferably after the places
when the fTheta values are set:

```
fEta = -TMath::Log(TMath::Tan(fTheta/2.));
```

3. recompile

4. run the macro

Hopefully you will get the variable in the output tree as fEta.

yours
radek

Subject: Re: getting run_rutherford to calculate eta parameter [SOLVED]
Posted by [Raphael Cervantes](#) on Thu, 15 Nov 2012 15:53:34 GMT
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Thank you Radek,
That did the trick. For those who may have the same question as I do and who are as clueless
as I am, make sure you include the TMath header in FairRutherfordPoint.cxx at the top so that
compiling knows what is going on with Tan and Log
#include "TMath.h"
Do this at step 2.
