
Subject: Re: Bear Smear and Cross Sections
Posted by [Michael Kunkel](#) on Mon, 27 Aug 2012 23:32:53 GMT
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I do understand that my thoughts are hard to convey, I appreciate the time you are taking with this. I wanted to clarify a typo in my previous message.

Instead of
Michael Kunkel wrote on Mon, 27 August 2012 21:07: Is $_f$ the density function? If so, wouldn't using Input : $_x$ s $\cos(\theta)$, $_y$ is differential cross section
Output : cross section suffice?

I wanted to say

Is $_f$ the density function? If so, wouldn't using Input : $_x$ s $\cos(\theta)$, $_y$ is differential cross section
Output : $_f$ cross section suffice?

What I am finding hard to conceive here is how the distribution is generated.

Moreover, I want to clarify what I am trying to do, and hopefully I can understand my mistakes after this.

I have 64 models I will be using. I was assuming I could implement this as

```
model1->SetRange(1.77,1.8);  
...  
...  
...  
model64->SetRange(2.56,2.6);  
  
model1->AddHistogram(example1,"value = Eval(_x); _f =_y * value");  
makeDistributionManager()->Add(model1);  
...  
...  
...  
model64->AddHistogram(example64,"value = Eval(_x); _f =_y * value");  
makeDistributionManager()->Add(model64);
```

In the above snippet I use 1 histogram for each model. Each histogram is derived from published data with

$_x = \cos(\theta)$
 $_y =$ Differential Cross section
The histograms are extrapolated from TGraphs (see below);
c.m. 1.77 ->1.8 GeV

c.m. 2.56 ->2.6 GeV

As it can be seen from the plots above, the cross section depends on both the c.m. energy and $\text{Cos}(\theta)$;

I am trying to model this, however the example macro you provided states (lines 31 & 32):

```
//Input: _x is cos(theta), _y is the c.m. energy
//Output: _f: cross section
model->AddHistogram(distribution,"value = Eval(_x); _f = _y * value");
```

But cross section, from a physics stand point is proportional to $\text{Cos}(\theta) / s$, where s is square of c.m. energy.

This is my a source of my confusion and also not understanding how to use what I already have, $\text{cos}(\theta)$ vs. diff XSection, is the other part of my confusion.

Thanks

File Attachments

- 1) [Eta_1.77_1.8.jpeg](#), downloaded 550 times
 - 2) [Eta_2.56_2.6.jpeg](#), downloaded 519 times
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