Subject: Study of energy loss of GEM!
Posted by donghee on Tue, 26 May 2009 09:48:57 GMT
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Dear Gem experts,

When I study gem stuff, I have seen a energy loss information
in gem class, namely PndGemTrack::GetELoss().

How do you know Energy Loss for GEM?
If I correctly understand, GEM is a tracking device for most forward angle. There is no ADC front-end-electronics.

I would like to know how can access energy loss conceptionally?
Thank you!

Subject: Re: Study of energy loss of GEM!
Posted by Anonymous Poster on Tue, 26 May 2009 09:54:45 GMT
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Hi,

I am just guessing here, but do we have an idea yet about the amp/shaper/ADC (or even TDC) combination that should be used for reading out these detectors? Probably not.... But why do you need an amplitude info? It should be enough for this tracker to give a point which is smeared with a realistic resolution (in my mind something like 80mum or so).

Cheers, Christian

Subject: Re: Study of energy loss of GEM!
Posted by donghee on Tue, 26 May 2009 10:42:21 GMT
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Dear Christian,

I wonder that how one can estimate energy loss in certain detector without ADC.
This is very simple academical question (at least in my side)
I assume that GEM has only TDC info. then I would like to knnow how energy loss can define from TDC info?

I know this question is not so professional, if I finished PhD already.

Best wishes,
Donghee

Subject: Re: Study of energy loss of GEM!
Posted by Anonymous Poster on Tue, 26 May 2009 11:32:20 GMT

No worries

Well then my question would be: Why do you want the Eloss signal from a GEM. It has huge Landau fluctuations (I guess around primary 30 e- in average or so), so you cant use it for PID. The only thing you can use the amplitude for is for looking for amplitude correlation in a double strip readout for pattern recognition and I assume that will be done. And of course we will need either ADC or TDC for the readout at the end of the day. And you can guess the amplitude of a charge pulse if you measure time over threshold in a TDC.

But maybe there is something I didnt think of?

Cheers, Christian

Subject: Re: Study of energy loss of GEM!
Posted by Radoslaw Karabowicz on Tue, 26 May 2009 11:50:03 GMT

Dear guys,

there is a plan to have at least 4-5 bit ADC information taken from the GEM detectors.

This information will be used only to get better point resolution and is not suitable for any PID considerations.
In the central region a particle flying perpendiculary to the plane will be firing at least 3 to 4 strips, and the ADC will be used to calculate the center of gravity.

yours,
radek
