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Subject: Problems with new GEM Geometry

Posted by [Tobias Stockmanns](#) on Tue, 17 Apr 2018 09:22:25 GMT

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Dear PandaRooters and GEM experts,

in the analysis of the reaction:  $p\bar{p} \rightarrow X_i X_{i\bar{p}} \pi p_{i\bar{p}} \rightarrow 3 \pi 3 p_{i\bar{p}} p \bar{p}$  we see a significant drop in the reconstruction efficiency depending on the GEM geometry we use. With the old geometry (gem\_3Stations\_Tube.root) we get 18.3% (15.2% MCTruth matched) of reconstructable events with all final state particles in the event, while with the new geometry (gem\_3Stations\_realistic\_v2.root) this value drops to 6.4% (4.3% MCTruth matched).

It is not clear if this is a real effect of the additional material introduced by the more realistic description of the GEMs or if there is still a bug in the geometry description which causes the drop of a factor 3.

It would be great if an expert on the GEMs could have a look.

Cheers,

Tobias

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Subject: Re: Problems with new GEM Geometry

Posted by [Stefano Spataro](#) on Tue, 17 Apr 2018 09:28:43 GMT

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Something similar happened several years ago, when the geometry of one GEM plane was shifted a bit, and the corresponding recohits were not properly updated (and the Kalman was not able to fit such wrongly placed hits).

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Subject: Re: Problems with new GEM Geometry

Posted by [Radoslaw Karabowicz](#) on Tue, 17 Apr 2018 11:26:16 GMT

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Hi there,

Does it happen only for this one specific channel?

I will have a look into the problem tomorrow.

yours  
radek

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Subject: Re: Problems with new GEM Geometry

Posted by [Tobias Stockmanns](#) on Tue, 17 Apr 2018 11:56:14 GMT

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I cannot tell if it is only for this channel but I guess that this effect is there for all particles with long decay lengths like lambdas and cascades.

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