Subject: Hector and Hector+ arrangement
Posted by mlcortes on Thu, 17 Jul 2014 09:42:42 GMT
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Hallo!

I am looking for the arrangement of the Hector and Hector+ detectors around the target chamber.
Does anybody have it?

Subject: Re: Hector and Hector+ arrangement
Posted by RiccardoAvigo on Thu, 17 Jul 2014 10:11:34 GMT
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Hi,
in attachment the positions of LaBr and BaF detectors I have. One file is for 2012 setup and one for 2014

cheers

Riccardo

File Attachments
1) GSI 2014 hector+ only angle measurements for analysis (1).docx, downloaded 540 times
2) 2012-10-11-misure LaBr e BaF @GSI.pdf, downloaded 771 times

Subject: Re: Hector and Hector+ arrangement
Posted by thuyuk on Fri, 19 Sep 2014 14:19:26 GMT
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Hi Riccardo,

Thanks for sharing the position documents. Below, I would like understand better some points regarding to the setup in 2012.

What is the (0,0,0) reference point for these positions? It doesn't seem to me that the target nominal position is at their "0" point, am I right? I see that the four LaBr detectors that stand next to AGATA are around 23 cm away from the reference point towards LYCCA in the y-axis in the coordinate system of your document (in the z axis in the FRS' coordinate system, if I'm not wrong). But we know that AGATA is placed around the target nominal position, and in this case the Hector detectors should always take negative y-axis values, shouldn't they?

Anyways, are r and theta parameters calculated regarding to the front face of the detectors or to their geometrical centroid? I see inside the "new_prespec_Go4" analysis code (the one that was provided "officially" by GSI) the theta angles are different than these ones. Is this just because the reference points are different in both cases?

Sorry for asking too many questions!

Tayfun

Subject: Re: Hector and Hector+ arrangement
Posted by RiccardoAvigo on Fri, 19 Sep 2014 15:44:45 GMT
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Hi tayfun,

Hector Labr on AGATA frame were farer from target than AGATA crystals, as regards y axis if I compare the image of the three axes in the document I think that everything that is between the target and the LYCCA-wall has to have positive y values. As regards r it is consistent with the position of frontal face.
As regards theta, may I ask you to attach the theta values of HECTOR position you have?

thanks

Riccardo

Subject: Re: Hector and Hector+ arrangement
Posted by thuyuk on Fri, 19 Sep 2014 15:57:39 GMT
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Hi Riccardo,

Thanks for the additional explanation.

Please find below the angles found in the "old" new_prespec_go4 code:
double ThetaBaF[8]={2.478,2.478,2.478,2.478,1.536,1.536,1.536,1.536}; //For BaF
double ThetaLaBr[10]={1.187,1.187,1.187,1.187,1.536,1.536,1.536,1.536,2.478,2.4 78};//For the LaBr

Therefore, the HECTOR detectors use their own reference point, is this correct? Do you have the theta angles converted into the frame where the target nominal position is at (0,0,0)? Do you think the angels above are already the ones in the "target frame".

Thanks!
Tayfun

Subject: Re: Hector and Hector+ arrangement
Posted by RiccardoAvigo on Fri, 19 Sep 2014 16:13:15 GMT
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Hi tayfun,

well, I think in both cases the angles are in target reference frame: in the document in degrees and in go4 in radiant. There is a little difference (some tenth of degree) but I think is due to the fact that the Labr is quite large. Please pay attention that maybe the order of BaF detector is not the same in the document (the four ones at roughly 90 degrees are in one case the fisrt four and in the other case the last ones). I don't know if this can help, but maybe I missed your point...

Riccardo

Subject: Re: Hector and Hector+ arrangement
Posted by thuyuk on Wed, 24 Sep 2014 08:34:38 GMT
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Thank you Riccardo, certainly your explanation helped me.

I would like to know if anybody did any improvement in the algorithm of the HECTOR scintillators in the prespec code (M. Reese, et al.). I see that the cosine angles are directly requested from an parameter file without making a calculation for the angle between the particle and the gamma trajectories. Does anybody have done such improvement?

Best regards,
Tayfun

Subject: Re: Hector and Hector+ arrangement
Posted by miree on Wed, 24 Sep 2014 08:58:42 GMT
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Hi,

The existing HECTOR processor is really simple. Any improvement would be greatly appreciated

Michael

Subject: Re: Hector and Hector+ arrangement
Posted by thuyuk on Wed, 24 Sep 2014 09:10:48 GMT
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Hi Michael,

In fact, I have done some improvements in the calculation of the particle trajectory, taking into account also the target's forward position. In other words, in this algorithm, I don't make the traslation of the x-y plane of Ta-DSSSD, but I make the projection of it at a given distance by ztarget_offset in the par file.

I tried to be put it in parallel with the DopplerCorrection.cpp inside the AGATA plugin, which

seems to work fine for AGATA, but I faced with a problem in case of the HECTOR Scintillators that I'm already familiar with and still not able to solve it :/

So, maybe you can take a look and help me to understand what is wrong. You may find it in the attachment.

The error message I get is:
prespec/process/Processor.cpp:629: const double&
prespec::process::Processor::input_value(int): Assertion `inputs_.size() > channel' failed.

Thank you in advance!
Tayfun

File Attachments

1) hector.tar.gz, downloaded 554 times