
Subject: Re: Position calculations on start/stop scintillators

Posted by [miree](#) on Tue, 12 May 2015 14:40:16 GMT

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Hi,

in this case, the gaps in the line are from the gaps in the DSSSDs. The position for the correlation plot is taken from the LYCCA Wall DSSSDs and they do have gaps. The gaps are not equally well visible for all PMTs but in this particular case, the PMT#7 was on the right (or left) of the disk.

Other than this, the correlation plot should be one single line. I wouldn't know how to interpret any other structure (double peak, ...) in terms of the physics of this detector.

> The thing is that I'm not able to use TPCs for
> the position determination, because somehow the
> time gates were not properly set (reported after
> the experiment by Stephane), and I don't have a
> good y-axis position information from them.
> Therefore, I'm trying to determine the positions
> from the ToFStart scintillator only.

Ah! you want to get position from the ToF detectors without any reference position. I believe this is possible, but I have never done this. The calibration procedure that I described is depending on other position information.

In order to do what you want/need to do, you need another approach: one possibility would be to make a global minimization of a quantity that describes the quality of the calibration coefficients for a given number of events in the detector. Treat the calibration coefficients as parameters in the minimization. The quantity to minimize could be for example the sum of the variances of the distance-corrected PMT signals... or their product.... This is numerically involved since you have a 64 parameter space (2^{32} coefficients). But I am confident that this works (Christian Stahl has done something like this for DSSSD detectors with a similar amount of parameters).

Michael
