Subject: Re: PANDA ToF Task Force Questions
Posted by Bertram Kopf on Tue, 14 Jul 2009 13:41:09 GMT
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Dear Vladimir,
I would like to continue our private discussion about the tapered option (two weeks ago) here in the forum so that all others can also follow and contribute to this topic. As you mentioned, the tapered option has the big advantage that the material budget is almost independent of theta with up to 3 time less effective material budget for the forward angles (around 20 degree). This - of course - would have a lot of advantages for the photon reconstruction efficiency.
On the other hand I have some doubts that one can achieve the required time resolution of about 100ps. The time resolution depends on the number of optical photons reaching the readout devices at the end of the ToF bars. Due to the fact that the photons propagate through tapered bars where the slice plane becomes smaller I guess that the loss of photons is much bigger compared to non tapered bars. This effect is simply caused by Liouville's theorem. Am I right?
Therefore I would propose to firstly find out which time resolution is feasible to achieve with this geometry before one starts with more detailed simulations. What do you think? Does it make sense?

Best regards,
Bertram.