



Forschungszentrum Jülich
in der Helmholtz-Gemeinschaft



TAG - Tracking

Panda-Meeting, GSI, 20-Sep-2007

TAG Tracking

***Fabian Hügging, IKP 1,
Forschungszentrum Jülich***

Status

- Definition of benchmark channels Done
- Discussions on requirements and simulation questions for each sub-detector
 - MVD Done
 - MDC Done
 - STT Done
 - TPC Done
- Design choices, definition and procedure.
 - MDC design1, MDC design2 or Straws Done
 - TPC – STT almost done
- Milestones towards TDR needs re-discussion



Concluding document

New draft exist now (version 2.5.2)!

- can be downloaded from Wiki page
 - <http://wiki.gsi.de/cgi-bin/view/Pandataagtrk/DraftVersion>
 - STT & FT chapters concerning requirements & simulation question included
 - TPC section is still missing
 - 2-3 pages summarizing the detailed presentation
 - Bernhard in charge
 - Section for the CT decision to be discussed
 - I included some concrete questions/tasks for STT and TPC which must be answered before the decision can be taken
 - I took them from our last discussions concerning this topic
- No comments up to now!



Concluding document (cont'd)

Open questions:

- Milestone chapter is still a little bit vague due to the uncertainties of the PANDA schedule
 - Changed the date according to the recent discussion
 - Needs some re-arrangement
 - Input welcome
- Propose to prepare the next (hopefully close to final) draft within the next 2 to 4 weeks!!



CT decision

- Specific tasks for the Straw Tube Tracker:
 - Demonstrate that the required single track resolution and transverse momentum resolution is achievable with this self supporting concept keeping the total amount of material (including global support structures) around 1% of a radiation length.
 - Show the tolerance of the single straws against the expected ageing effects.
 - Demonstrate that the single point resolution is sufficient, i.e. below 150 μm in r' for the 1.5 m long self-supported straws.
 - Show dE/dx capability of low momentum tracks.



CT decision (cont'd)

- Specific tasks for the Time Projection Chamber:
 - Show that the required single track and momentum resolution is possible even for forward tracks which deposited charge has to drift through the entire TPC including the deteriorated field region in the forward area.
 - Demonstrate capability of handling the 1,000 superimposed events per TPC 'picture'.
 - Show the feasibility of coping with the expected space charge coming from positively charged ions at Panda like interaction rates.



Next steps

- (1) Decide upon of CT design decision (TPC vs. STT)
 - Sept/Oct 2007
- (2) Define and fix timeframe for milestones.
 - Nov/Dec 2007
- (3) Preparation of a concluding document of our work.
 - Final Draft Oct/Nov 2007
 - Final discussion and approval Nov 2007
 - Final submission to TB Dec 2007

Should we keep this working group (or part of it) to monitor the progress of the effort of the tracking detector development?

