Minutes of WP-meeting 294

Attendance:

DESY: Ralf Diener, Leif Jönsson, Claus Kleinwort, Uwe Krämer Vidyo: Yumi Aoki, Paul Colas, Qi Huirong, Jochen Kaminski, Tomohisa Ogawa, Ron Settles, Aiko Shoji, Akira Sugiyama, Jan Timmermans

General News:

Jochen discussed the results of the doodle poll regarding the Collaboration Meeting. After some discussion it was decided to have the collaboration meeting from noon 9.1.2019 to noon 11.1.2019. Paul said that he was asked by Claude Vallee for 3 slides to be shown in the detector overview talk. To have the newest results Paul asked all the technologies to send him a few slides with the newest results.

PCMAG/LP setup, test beam:

Ralf: PCMAG/TRACI/test beam area:

- The DESY group is going through the details of the test beam preparations. The mounting tool is improved to work with the new endplate. Other tools are being checked.
- The mounting structure of the LP inside the PCMAG is not yet adapted for the new endplate. The wheels for turning the LP have to be adapted for the longer length of the LP with the new endplate.
- TRACI is currently used by ATLAS and will be reinstalled in T24 by the end of this month. They are using a Labview interface. Ralf will look into installing this also for LCTPC.

LP:

- Because of the test beam preparations the construction of the field cage is put on a hold.

News from the groups:

Uwe and Ralf reported that the new mounting procedure of the sensors and the readout chips for the external tracker are being tested with glass dummies at the moment. Everything looks good and the real gluing will be done after the LCWS. Mengqing just came back from SLAC where she learn more and test the readout of the KPIX together with the developers there.

Paul and Tomohisa reported on the progress of the test beam preparations. Three of the planned four detectors are ready and are being tested. The readout and DAQ are working fine. The new stainless-steel stiffener used to screw the FECs to the readout plane is working well and almost all channels are connected (only 1-3 channels per module seem to be dead or unconnected). The stiffener adds on average 1.5 mm stainless steel, that is, 8% of a radiation length as it is now. But in the final design the cooling plate could be integrated to this stiffener, and thus would not add matter. Paul claims that the plate does not deforms the PCB, since the strain is not applied to the PCB, but remains internal between the electronics and the stiffener.

The test beam will be from November 13th to 29th. The mounting will take place from the 14th to the 17th and data taking will start on the 18th. Dismounting will take place on the 28th.

Paul also reported on the simulation of the mechanical rigidity, possible support options and the deformation resulting from these supports. A senior and a young mechanical engineers were appointed part-time by the Saclay ILC group to study the TPC mechanics. They suggested to suspend the TPC by two lateral strips. This reduces the deformations by a factor of 2.5 in comparison to two vertical strips. Also a new endplate layout was discussed. However, a way to avoid projective cracks in this 'bicycle'

wheel' design has to be found. The impact of the gaps between two modules has to be studied first, before a decision can be made.

Also the deformations of the endplate was discussed. There were two main deformations pointed out and the number of wheels (the current 8 wheel model and the suggested 4 wheel model) have a significant impact on both types of deformation. The first one is the deformations of the complete endplate because of the overpressure in the detector. The second effect is the deformation of the readout plane of each module, which is probably reduced by using the gating GEM, which shields the field homogeneities of the module from the drift volume. The first one can be only determined by simulation, the second can also be determined by measurements of the current modules and the larger T2K modules.

Jan and Jochen reported, that the testbeam with the new Timepix3 Quads at Bonn was a success. About 30 million tracks were recorded in less than 2 days.

AOB:

The next workpackage meeting will take place on November 1st.