

Minutes of WP-meeting 262

Attendance:

DESY: Ulrich Einhaus, Oleksiy Fedorchuk, Leif Jönsson, Claus Kleinwort, Paul Malek Dimitra Tsionou. Mengqing Wu

Vidyo: Yumi Aoki, Paul Colas, Keisuke Fujii, Qi Huirong, Jochen Kaminski, Shinya Narita, Kentaro Negishi, Tomohisa Ogawa, Ron Settles, Aiko Shoji, Jan Timmermans

General News:

Jochen mentioned that the AWLC will not be in an omnibus style and we are therefore free to arrange our collaboration meeting. One suggestion was to organize it at KEK to have a meeting in Japan.

Keisuke said in principle there should be no problem, but he would prefer to delay the decision until beginning of June, when the decision of the next grand proposal is known.

The ILD meeting at Lyon next week is important because all the DD4HEP sub-detector models have to be signed off for the production of the small vs. large detector design of ILD. Dimitra has done everything for that.

There are also other conferences where we should be represented: The deadline of abstract submission to the EPS is in two days and to the IEEE at the beginning of May. We definitely need volunteers to go there and give an LCTPC overview talk.

The LCWS will be at Strasbourg this year.

Paul C. said there will soon be a request to write the Detector Interface Document. Henry Videau and Roman Poeschel are leading the effort and the templates are already available. Main information which will go into the document are space requirement, cable harnesses and power dissipation maps. There will be a kick off meeting where everything will be explained.

Paul also mentioned that Alexander from Strasbourg volunteered to study the effect of the (anti-)DID on background and luminosity and find an optimization.

News from the groups:

Paul C. said that the transparencies of the gating GEM at CERN are progressing and they have some amazing results. These have to be confirmed by new measurement in June and by Monte Carlo, which Mohisa will do.

Yumi reported first results on the data from the Japanese test beam campaign from 31.10.2016 to 13.11.2016 with the gating GEM+ Japanese GEM module. The main purpose of the analysis was to determine the transparency of the gating GEM from the reconstructed tracks. For this data with the same module 0 first with gating GEM and then the same data set was taken without the same module number 0 was first measured with the gating GEM, then without the gating GEM. The diffusion coefficient C_D was determined from the width of the signal in both cases. Here some discrepancy between the Garfield++ simulation, the measurement with gating GEM and the measurement without gating GEM was observed. Yumi has also determined the spatial resolution in dependence on the drift distance. From the fit of $\sigma_{r0} = \sqrt{\sigma_0^2 + C_D^2 / N_{\text{eff}} * z}$ she extracted N_{eff} in both cases with and without gating GEM. The ratio gives a transparency of $86.4 \pm 3.0\%$. These primary results will be studied in more detail to understand the discrepancies between the two measurements and the expected values. The environmental parameters like temperature and pressure have already been taken into account.

Aiko also studied the transparency of the gating GEM with the test beam data. She determined the total charge for each track and fitted a Gaussian to the MPV in the charge histogram of each run. By

comparing the charge of runs with gating GEM to those without a gating GEM she showed an overall transparency of 82.1 ± 0.14 % for B=1T data. She also studied the transparency in dependence on the drift distance and the row number. As expected there was no dependence on the drift distance, but some substructure was observed for the row numbers. This will be studied in more detail. Further plans include the stopping power of positive ions and the electron transparency at higher magnetic fields.

AOB:

The next workpackage meeting will take place on April 27th.