

Minutes of WP-meeting 245

Attendance:

DESY: Ties Behnke, Ulrich Einhaus, Oleksiy Fedorchuk, Claus Kleinwort, Paul Malek, Oliver Schäfer, Dimitra Tsionou, Georg v. Bismarck

Vidyo: Paul Colas, Jochen Kaminski, Ulf Mjornmark, Amir Shirazi, Ron Settles

General News:

Ties presented the TPC project of BNL: The upgrade of the RHIC program foresees an electron-heavy ion collider with sPhenix as a main experiment. As a main tracking device of sPhenix a TPC is foreseen, which is similar to our design. A major concern in this project is also the ion feedback, and if a mode of operation can be found, in which the TPC can deal with the high rates. Klaus Dehmelt is leading the project at BNL and to clarify the aforementioned issues he is trying to organize a test beam campaign with the Phenix experiment. The idea is that during the dismantling of Phenix next year, enough space will be generated to place a LPTPC-size prototype TPC inside the Phenix yoke, next to the beam pipe. In this configuration, one could run parasitically to other experiments, observing the tracks from the interaction point of Phenix. The yoke has an aperture of 1.2 m and a magnetic field of $B = 1$ T.

Discussions between Klaus and Ties lead to the idea, that the LP could be used for this test beam, if LCTPC would be interested and would support the effort/collaborate. For LCTPC it could potentially be interesting to see our detector perform at higher rates and have direct measurements of the dE/dx performance, since many different particle species are produced in this setup. Also, we could test our gating ideas.

The LP including ALTRO and power boards would be slightly too long, but by rearranging the power board the setup could be modified with a reasonably low effort to fit into the Phenix yoke. Probably both readout technologies (MM and GEMs) could be tested.

The idea is rather new and there are still several obstacles to overcome. In particular, the Phenix collaboration has to be convinced that the test beam is necessary and that modifying the dismantling schedule is worth the effort. But Ties wanted to discuss, if LCTPC is interested in general and if we should support any further investigations and planning. The resonance of the WPmtg participants was positive and Ties was encouraged to do so.

PCMAG/LP setup, test beam:

Ties: no news

News from the groups:

Paul mentioned that Serguei's abstract for the IEEE was accepted.

He also reported that Tomohisa Ogawa will come to Saclay (from November 14 to 25) to do some measurements with the gating device. Unfortunately, the X-ray gun is currently out of service and this will be necessary to do the measurements of the ion feedback. The Saclay group is investigating if the X-ray gun could be repaired again.

Paul also told that two new task forces are established in ILD, one investigating the layout of the iron in the HCAL, the other investigating the anti-DID design, taking into account the background generated in the trackers. A new idea is to have a cylindrical magnet generating a dipole field directly around the beam pipe. Since this is of interest to LCTPC, someone from our group should follow up on this and if

possible attend meetings of the task force. Ron volunteered, if the connection details are made public.

Ties reported that preparations of the September test beam are ongoing. All orders have been placed and all parts are expected to be in house in mid-August allowing for more than a month for assembly and testing of the modules.

Also Geant simulation studies are ongoing how a target could improve the double track production at the DESY test beam: First results indicate, that a target between PCMAG and the LP could increase the ratio of double track events to single track events to 3-5%.

AOB:

The next workpackage meeting will take place on July 28th.