Minutes of WP-meeting 170

Attendance:
DESY: Ralf Diener, Isa Heinze, Felix Müller, Astrid Münnich, Volker Prahl, Klaus Zenker
Saclay: David Attie, Purba Bhattacharya, Sudep Bhattacharya, Paul Colas, Keisuke Fujii, Nayana Majumdar, Supratik Mukhopadhyay, Wenxin Wang
Fuzebox: Alain Bellerieve, Philippe Gros, Jochen Kaminski, Dan Peterson, Ron Settles, Jan Timmermans

PCMAG/LP setup, test beam:
Ralf: PCMAG/test beam area:

- Currently the ATLAS group is currently in the area, but having some problems, since one of the EUDET-telescopes is not working properly. This is unfortunate, also for us, because they wanted to map the momentum distribution of the test beam.

LP:

- The gas connector at the cathode has been changed and the HV-stability has improved. The setup has stood 17 kV for one and a half days without a trip.

Test beam schedule:

- The DESY group will start mounting the LP on Monday in the PCMAG. The availability of the test beam has been extended until the end of August. The shutdown will then be from September until the beginning of January.

News from the groups:
Felix: The DESY group has mounted three modules in the LP and is flushing the detector with T2K gas. The pads are grounded and the HV test will start this afternoon. On Monday the closed LP will be transported into T24/1 and will be mounted inside the PCMAG. On Tuesday Ulf and Leif will come from Lund and mount the electronics. Then, tests will start and during the week of 4th - 8th of March some data with cosmic rays will be taken. Data taking with beam will start after the shutdown on Monday 11th of March.

Paul: Saclay is analyzing the data from the last test beam. Currently Keisuke, Supratik, Pruba, Nayana and Sudep are at Saclay and discuss the analysis. Currently, the χ^2-fitter is used and the cuts are discussed to reach a good result, but not to bias it. For example, only events with a single track are chosen. Also, resolution is given only for the central module, since in all other modules the contact between many pads and several AFTER ASICs was lost because of the connectors. Also, the χ^2 of the fit is discussed, since it is higher than expected. Currently the same error is used for all hits in one row. But an event based error (possibly based on the RMS of the hit) is considered, since it can vary, for example, if there was a δ-ray.
Wenxin has to finish her thesis end of March and is working on the data. She showed the distortions in dependence on the row number for several parameters. For example, she compared the distortions of $\varphi \approx -15°$ and $\varphi \approx 20°$ without a magnetic field. The distortions were inverted. When data with $\varphi \approx 20°$ and $\varphi \approx 15°$ were compared, the form of the distortions changed significantly, which is currently assumed to be because the tracks pass closer to the gaps between the modules in the top and bottom row. Finally also the influence of the magnetic field was shown. More detailed results will be presented in the analysis meeting on Tuesday.

Keisuke reported that the Kalman filter package KalDet was extended. So far, the resolution was given by combining the results of all pads, now the resolution can also be extracted for each row and hit by hit.

Nayana and Supratik have successfully installed MarlinTPC on an Indian computer and will start now to analyze the data. They will then start to improve some of the processors.

Astrid reported, that there is a new postdoc at DESY, Oleksandr Volynets, who has taken over the responsibility for the ILD software. He has started to adapted the ILD tracking package, in particular KalDet and KalTest, so it can also be used for the LP. These two packages, which are also used in the MarlinTPC code, use Klupatra as a track finding algorithm. When the upgrade has been finished, the algorithm can also be used for multi-module data and it will be tested with the DESY data set.
Astrid also mentioned, that the analysis of last year's data showed occasional large pulses, where on the falling edge a shoulder could be identified and then the signal leveled out at a higher value than the baseline before the pulse. This baseline shift lead the reconstruction algorithm to include 30-300 time slices in the cluster and, thus to huge cluster charges. According to Keisuke and Philippe, the same events were observed in the data of the Japanese test beam and are responsible for the initial reports on a significant drop of cluster charge versus drift distance: The longer the drift distance the fewer time slices with shifted baseline are recorded and the lower the average cluster charge becomes. This is likely a feature of the ALTRO electronics and further information will be given during the analysis meeting on Tuesday.

Jochen reported that the 'AFTER-to-ALTRO connector' adapter for the Micromegas module have been designed and that a few issues have to be clarified with Lund and Saclay.

AOB:
Since several issues with MarlinTPC were mentioned during meeting, it was again emphasized, that many solutions are already described on the MarlinTPC webside:
http://ilcsoft.desy.de/portal/software_packages/marlintpc/
If any other problems arise, the software coordinator, Christoph Rosemann, should be contacted.

The next analysis meeting will be on February 26th.
The next workpackage meeting will take place on March 7th.