

Minutes of WP-meeting 222

Attendance:

DESY: Ulrich Einhaus, Leif Jönsson, Paul Malek, Felix Müller, Oliver Schäfer

Fuzebox: Ties Behnke, Deb Sankar Bhattacharya, Paul Colas, Madhu Dixit, Serguei Ganjour, Katsuma Ikematsu, Jochen Kaminski, Takeshi Matsuda, Rashid Mehdiyev, Amir Shirazi, Ron Settles, Akira Sugiyama, Junping Tian, Jan Timmermans

General News:

Paul announced that there are transnational access funds available from AIDA2020 for coming to DESY facilities (i.e. test beam). A mail was sent around by Marcel Stanitzki and Jochen will attach the email to the agenda, so everyone can read it.

PCMAG/LP setup, test beam:

Ties: Slow progress on issues reported before.

Discussion on list of issues:

Jochen went through the list of issues and the various points were discussed. It was suggested, to add responsible persons to the list, if there is an obvious one. This person should organize the task and serve as a contact person for people joining and being interested in the task. If possible we could also rate the priority of the tasks.

1.) Gating. Akira agreed to take over the coordination work, since at Saga University the largest progress is done. Research is concentrating on the GEMgate and the wire gate has a low priority in comparison.

It was discussed, how the ion drift velocity could be measured. It is easy to give a rough answer, but a correct approach needs to analyze the ions to understand the contribution of the different ions. There is a group concentrating on this in RD51. Maybe one could ask them to study our gas, once we have done the final decision.

2.) Simulation. At DESY Annika has started a detailed simulation of the GEM + pad setup within MarlinTPC. This should lead to an optimization of the pad size. There are many other activities in other institutes. Calcutta (Deb and Supratik) is studying the local field distortions, which may be finished in about 2 months. Saclay and Carleton are studying the two track resolution with simulation.

There was some discussion on the approach of the simulation: One option is a detailed simulation with a standalone program, most likely based on Garfield++ vs. a parametrized implementation in MarlinTPC. It was stated, that for specific initial studies the standalone approach is necessary and detector behavior can only be understood by that. But in a second step the knowledge should be parametrized and implemented in MarlinTPC so that more global questions can be studied in this framework. Here, the importance is to study first the test beam data with detailed simulations and then also the ILC-TPC with background, pileup and track distortions is necessary. Simulation for the pixels are still missing.

A central coordination is not useful nor possible at the moment.

3.) Electronics. Leif is a natural coordinator for this task, but to address the issues he would need more

resources. The S-ALTRO is on good track in Lund and power-pulsing tests with the S-ALTRO can be done, once the electronics is available.

A group of expert has met a year ago and discussed the status. Paul advised to have a close look on RD53 at CERN. They are developing IC's in 65 nm technology and several components (like preamplifier) could be very interesting for us. Maybe a meeting with them (e.g. Michael Campbell) would be good.

4.) Here the same things apply as for the simulation: some issues are being addressed (double track resolution and local field distortions), but currently resources are missing to study everything in detail.

5.) High magnetic field. Currently no infrastructure is in sight. But test do not seem very urgent. Only the tests of the gating device in a high magnetic field would be interesting.

7.) The external tracker is being addressed by Dimitra at DESY and it is being paid for by AIDA2020.

8.) Mechanical aspects. A detailed design is only sensible, once the final dimensions are decided. However, it would be very important to have a detailed model in the simulation, which includes also some aspects of a real implementations like dead regions. There will be a high level reconstruction meeting at DESY soon. We should observe the meeting and afterwards check the parameters before the mass production of the simulation starts. However, we have not yet found someone to take charge of the simulations model. One could maybe ask Junping, who is closely involved in the physics, too.

9.) Temperature. Takahiro and Leif are interested in the cooling and there is also a project in AIDA2020 looking at micro-channel cooling. Leif talked with the convenor and he is interested in our project and promised to simulate our setup to find the proper size of the channels and flow rate. As far as the other tasks are concerned, no-one has started yet, but they were also not rate with high priority.

AOB:

The next workpackage meeting will take place on July 2nd.