

## Minutes of WP-meeting 212

### Attendance:

DESY: Ralf Diener, Oleksiy Fedorchuk, Leif Jönsson, Claus Kleinwort, Paul Malek, Felix Müller, Volker Prahl, Oliver Schäfer, Annika Vauth, Klaus Zenker

Fuzebox: Alain Bellerive, Deb Sankar Bhattacharya, Paul Colas, Madhu Dixit, Keisuke Fujii, Serguei Ganjour, Katsuma Ikematsu, Jochen Kaminski, Takeshi Matsuda, Rashid Mehdiyev, Ron Settles, Jan Timmermans

### General News:

Paul announced, that the AIDA-2 proposal was approved with a total budget of 10 M€. This is also good for LCTPC, since there are some projects: DESY can now build the silicon envelop between the LP and PCMAG, Leif has a project of studying an advanced endplate and Bonn gets some money for implementing the Timepix3 readout in SRS.

Ron reported, that during the MDI meeting this morning Carsten Büsser summarized the joined ILD/SiD MDI session during the last SiD meeting at SLAC. The machine people had required some time ago that the  $L^*$  is the same for both experiments (Currently ILD: 4.4 m, SiD: 3.5 m). For ILD the reduction of  $L^*$  was not possible, because of a vacuum pump. It was realized, however, that the safety margin for the vacuum system is large enough and thus it was redesigned and the pump was moved away. Therefore, the discussion now focuses on an  $L^* = 4.1$  m. The final decision will be done during the ALCW2015 meeting. If this has an impact on the TPC geometry is not quite clear, but it could mean that the TPC becomes a bit shorter.

Paul said that there is a group of appointed MEXT members (amongst others the appointed KEK director) touring to various countries. On the 15.1. they visited France. They meet only with the management to understand how many people would be involved in the ILC from each facility.

### PCMAG/LP setup, test beam:

Ralf: PCMAG/TRACI/test beam area:

- There are preparations ongoing to prepare the T24/1 for upcoming test beams. The machine people are commissioning the new setup (new counters and new target).

### News from the groups:

Ralf presented the status of the design of the 2<sup>nd</sup> field cage. The first field cage was produced by a company but it was felt that too much know-how was lost, if it was not done in house. Besides, studies have raised questions on the correctness of some information given by the company.

For the bending tests 11  $50 \times 600$  m<sup>2</sup> pieces have been produced with a similar wall structure as LP1, but some components have been varied. These modifications with different glues have been prepared. Then bending tests were done with all samples and two aluminum pieces and one LP1-sample in addition.

For aluminum the bending behavior is well known and they serve as a reference. The tests have shown, that the Epoxy L is the best glue for the lamination process, but that more glue than so far assumed is necessary to have epoxy hollow wells everywhere at the contact between the honeycomb and GFK. A second batch of sandwich structures is being prepared and will be tested soon. The required field homogeneity can be translated into a maximum bending allowed. A calculation with aluminum will be done as a reference and then samples will have to be found that have the same stiffness as the aluminum in the simulation.

In parallel a new mandrel will be designed and constructed, since the old is not aligned with the axis

well enough. Finally, also new screw inserts made of Torlon are being tested to reduce the material budget. Possibly a smaller field cage will be built to study the procedure before building the LP2.

Rashid had reanalyzed all the old MM data from 2010 to 2014 with MarlinTPC. He showed the transverse and longitudinal spatial resolution and compared his results to previous results done with FTPC and MarlinTPC. Differences are expected to be only due to different track selections. He also studied the influence of different algorithms, shaping time settings, gas gains and the influence of the outer rows, where field distortions are prominent. As expected the shorter peaking time gives better results for the longitudinal spatial resolution, but for shorter drift distances also the  $r\phi$ -resolution improves with respect to longer shaping times. This was explained by the reduced diffusion and thus shorter signal and faster charge collection. For longer drift distances, where more longitudinal diffusion leads to a longer charge collection time and the longer shaping time is expected to give better results. Paul remarked, that the 2011 and 2012 data has severe flaws (wrong routing and fake crosstalk between channels) and should not be used to for analysis.

Paul said he is working on the new modules and trying to improve the old modules, but there are still problems with the connectors and it looks like that still some channels might lose the connection during the test beam. Besides, he invited everyone to join his test beam in March. Not many people have signed up at the indico page. Alain suggested to include the t0 in the data, but it was agreed to discuss the details during a separate meeting next we.

AOB:

The next workpackage meeting will take place on February 5<sup>th</sup>.