

FCAL software and analysis WG.  
Meeting Minutes.  
July 06, 2016.

The meeting started with the discussion of the paper of test beam 2014 results.

- Aharon reported that the text of the paper is mostly ready, the missing part is S/N ratio which Marek/Jacob will add after reading the existing draft;
- Discussion on telescope contribution to the paper is postponed;
- It was agreed that the draft of the paper will be send to Marek for working on S/N section and also to Wolfgang and Konrad;

Itamar presented the results on lateral shower development study with TB-2014 data:

- Different methods of shower position reconstruction were studied. The constant  $W_0$  of the logarithmic weighting method was scanned and the best resolution was achieved at  $W_0=1.8$ ;
- The procedure of Moliere radius evaluation based on the experimental data was presented and discussed;
- Moliere radius was calculated for each TB-2014 configuration both for data and MC simulation.

During the discussion:

- Wolfgang pointed out that the position reconstruction is not good and could be improved by applying  $\eta$ -function algorithm correction. The  $\eta$ -function itself can be build based on the data;
- The approximation of the lateral shower profile with the four-parametric function looks significantly better for the data than for the simulation. It is manifested by the  $\chi^2/NDF$  of the fitting result. This might be explained by the bigger uncertainty in data points which come from the calibration error of 5%.
- Comparison of the values of Moliere radius obtained with data and simulation for different configurations with those estimated using the PDG formula shows disagreement. The reason is that the PDG formula assumes the shower is measured completely while in TB2014 configurations it is sampled with only 4 detector planes.

There were technical problems with giving a talk on LHCAL MC simulation. It is postponed to one of the next FCAL meetings.

Preparation for the TB2016:

- About 10 people of different FCAL groups already decided to participate in the test beam. Leszek has a preliminary list.
- Detectors preparation is going on in Tel Aviv University.
- Carbon fiber envelopes for new modules were produced by CERN and sent to TAU.