

## ⌘ TPC MEETINGS

ALEPH 89-22  
TPCGEN 89-3  
W. Tejessy  
9.2.1989

*Minutes of the meeting held on February 3, 1989*

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Dieter Luecke has joined the TPC group effort for a year as a scientific associate.

As regards the status of installation of the experiment, measurements by the geometers have taken somewhat longer than expected and the search for a spurious TPC short circuit to ground took some time. By mid January, the high voltage recabling started and a week later the cabling of the first sector got under way. This cabling is expected to last until mid March. Space for cables proves to be very cramped. The water tubes for the cooling have been found to have faulty welds and they have had to be dismantled and repaired causing additional delays.

The computer cluster has been moved to Echenevex and, together with the Fastbus connections, is promised to be generally available from February 6th. Due to the lack of fire detection, the cluster will remain switched off overnight. It is hoped to have a portable detection system installed within a week.

Almost all remaining TPPs are now in Pisa, where they are being tested at a rate of one per day. Seventeen have recently been brought to CERN and by end of February over 36 should be available.

The surface gas building is still not fully functional. Smoke detection, extraction ventilation and alarms to the fire brigade are unreliable or missing. The gas racks are installed and functioning and first gas tests are proceeding, but further progress depends on having reliable safety facilities. Installation of gas tubes into TPC requires that the above mentioned water tubes first be in place.

Any commissioning of high voltages, lasers, etc. has to be in accordance with safety rules; the specialists from TIS must be involved. -A shuttle service will be run from Febr. 6th onwards to the Echenevex area. (Provisional schedule: up: 9:00 and 14:00; back: 12:00 and 17:15.)

Ed Blucher gave a summary of the situation concerning the problem of pad row 1. A systematic shift has been found that may push track points in row 1 to the sides of a sector by upto about 1.5 mm. The presentation of the effect for cosmics, Yag and Mopa laser data led to an animated discussion concerning possible causes for such a behaviour. Concurrently, the sector alignment in the  $r$ - $\phi$  plane has been looked into and results were presented.

Track curvature from potential mismatch between field cage and sense wires has been further studied by Stephan Haywood. The curvature corresponds to a momentum of 1600 GeV. Systematic effects coming from the wire gain variations were looked into with the help of gain map measurements, the DAC settings after calibration and cosmics data. Gain variations with radius were presented from these three sets of data for 9 different sectors. The systematics of the slopes are not yet fully understood.

"Measuring the drift velocity from TPC wire data" was the title of Michael Schmelling's contribution. After underlining the advantages of using the wires for this study (more information, simpler geometry, same electronics for all tracks), the choice of cuts to clean the sample of Yag laser data (run 715) and the method of analysis were discussed. The precision of the measurements was illustrated with residual distributions. Measurements are differential to the 90 degree beam to reduce systematic effects. The drift velocity results from 6 different sectors are within the errors not dependant on the position in the TPC of the sector. A value of  $5.0607 \pm 0.0016$  cm/microsec was found. It seems that a global fit of the drift velocity will be feasible. The results will be presented at the Calibration Meeting in the ALEPH week to which all present were cordially invited. - D. Schlatter requested exact definition, in agreement with R. Johnson, of the BOS bank to contain drift velocity information.

Eduardo Milotti presented new calculations concerning the possible displacement of measured points due to the oblique angles between pad edges and wires. This effect was studied using three different pad response functions (TPCSIM, modified TPCSIM and the Blum/Rolandi Ansatz) and the results discussed. A further source of shift can be found in the change of width of the pad with radius. The effect of this, in fact, trapizoidal pad shape was analyzed. A table of these systematic errors was shown.

An addendum to these minutes, which will be sent at a later date, will give a resume of the results of the above presentations.

In conclusion, Gigi Rolandi reminded the meeting of the need to think about which geometrical alignment data should be stored and in what location. For the TPC itself there should be no problem if it remains the general reference. But alignment of various components, e.g. the sectors to each other, must be stored. It was recalled that the geometers by misunderstanding did not do any measurements in the xy plane; this will be done shortly. Furthermore, W. Richter is constructing a simple measuring device to determine relative positions of points on different sectors to 0.05 mm.

The NEXT TPC MEETING will be held on Friday, April 7, 1989 at 14:00 in building 32, room 1/A - 24.

wt/EF  
8 February 1989

Secretary: W. Tejessy