Minutes of the 171st Energy Calibration Meeting held on 22 January 1999

1 Prospects for polarisation at high energy

Ralph Assmann explained that there is hope for finding polarisation with the 60/60 optics at higher energy (70 to 80 GeV) by using a high Qs working point (Qs of about 0.2, compared to around 0.1 used for polarisation so far). The standard theory predicts 5% polarisation up to about 80 GeV, which is beyond the dynamic aperture of the optics. The aim would be to test this at the end of a multipoint polarisation fill, probably starting by changing Qs at 60 GeV and verifying that the expected increase in polarisation level is seen.

These studies would be in addition to the attempt to find polarisation at around 90 GeV with the physics optics.

2 Requests for 1999

Pippa Wells showed a draft of the request for energy calibration time in 1999. This was discussed and refined during the meeting, and will be presented at the Chamonix workshop on 28 January. (The slides from the Chamonix talk will be available on the energy calibration web pages.)

3 Analysis of NMR data for 1998

Guy Wilkinson has looked at the data quality for the 444 high energy fills and 28 Z fills with physics running in 1998. More patching of the data after logging failures remains to be done.

From the fields measured by the NMR's at the start of each fill, there is no problem with NMR stability through the year, and the same calibration constants can be used before and after the probes were replaced. Any possible shift in calibration constants would cause a shift in energy of less than 10^{-5}, as expected from the studies done to establish the coresponding mechanical stability.

The spread in initial energies over all the fills has an rms of 8.4 MeV, which is lower than for 1998. A few fills at the start of the high energy running have a high value of initial field because of the mistake in the magnet calibration curves at the start of 1998.

The other inputs needed for the energy model are available, and Guy plans to make a first set of energy files in the next week or so for the experiments to check.

4 RF corrections for 1998

Mike Hildreth showed the results of running the RF model on the 1998 data. The energy shifts for each interaction point are between 4 and 13 MeV, with boosts of the centre of mass system between 20 and 65 MeV.

The Qs measurement shows a nasty structure. The spacing between the bulk of the readings and two additional bands are too large to be explained by cavities tripping off without being logged.

5 Next meeting

The next meeting will be on Friday 5 February, with the main aim of reviewing the data quality for the preliminary energy files (for the Spring 1999 conferences) and to start the discussion on the corresponding error.

Pippa Wells, 25 January 1999.