June 14, 2004

# LHC EXPERIMENT-ACCELERATOR DATA EXCHANGE WORKING GROUP (LEADE)

## Minutes of the 18th Meeting held on June 14, 2004

Present: P. Baudrenghien, G. Beetham, B. Dehning, D. Evans, P. Grafström, Ch. Ilgner, A. Smith, W. Smith, E. Tsesmelis

## 1. MATTERS ARISING

Approval of the Minutes
The minutes of the 17th LEADE meeting were approved without modification.

Detectors for Collision Rate Monitors - Luminometers
The functional specification describing the LHC collision rate monitors has been approved. Candidate technologies for the monitors are ionization chambers and CdTe solid state detectors. Due to their radiation hardness, ionization chambers are proposed for Point 1 and Point 5. Although their operation at 40 MHz is not yet proven, they will be operated at the highest possible frequency. Tests are in progress to determine the timing response of the ionization chambers. Moreover, at Point 2 and Point 8, it is proposed to use CdTe detectors due to their superior timing capabilities. The September 2004 LEADE meeting will be dedicated to a discussion on the technologies of the collision rate monitors as well as to presentations on detectors developed by the LHC experiment collaborations which can also provide information on the collision rate. As remarked by Bernd Dehning, data from the experiment spectrometers were used at LEP2 to measure the collision rates independently of information from monitors in the LEP machine.

Archiving of Information on LHC Data Interchange Bus
The LHC Logging System will have a data retrieval functionality from a Graphical User Interface which will be Web-deployed and thus accessible to the experiments. Data from the LHC machine can thus be visualised graphically or streamed in to an ASCII file. A talk will be given at a next meeting of LEADE providing details of this mechanism.

TTC
Sophie Baron currently works part-time together with Mike Clayton on the TTC system, and will join the effort full-time from 1 July 2004. Questions on the system should be addressed directly to her and she will give a status report at a next meeting of LEADE.

## 2. REPORT ON BEAM-LOSS MONITORS (B. DEHNING)

Bernd Dehning presented the current status of the beam-loss monitors. There are 4 types of beam-loss monitors (BLMA, BLMB, BLMC and BLMS), out of which the BLMC (at the collimator regions) and the BLMS (located at critical aperture limits or at other critical positions in the straight sections, at the inner triplets and at the D1/D2 magnets) need to be always operational, otherwise no beam injection is possible.

The loss detectors will be either ionization chambers of 1.5 L volume or secondary emission chambers (to deal with injection failures). Due to the limited dynamic range ($10^8$ for the ionization chambers), at special locations such at the TAS absorbers, more than one detector needs to be installed. In general, the detector locations will be chosen in a way that the individual sensors can distinguish between the beams (by means of shower development) and observe losses due to magnet misalignments, orbit changes and emittance growth.

With the ion running of the LHC, 1/1000 of the luminosity is expected. Bernd will check the behaviour of the BLM system for these special running conditions.

Action: B. Dehning

The current status is such that a complete prototype of the system is expected to be available by 12/2004. The installation of ionization chambers and secondary emission chambers is scheduled to start in 09/2005.

**Ch. Ilgner**

Provisional Dates for 2004 meetings:
2 August
6 September
18 October
13 December