

The IIHE (Inter-university Institute for High Energies) groups the Services of elementary particle experimental physics of the ULB (Université Libre de Bruxelles) and of the VUB (Vrije Universiteit Brussel) representing 45 physicists, 10 engineers and technicians, 3 computer scientists and 4 administrative support. Our teams are involved in various experiments:

- The CMS experiment at the LHC (top physics; extra dimensions physics)
- The H1 experiment at DESY (diffractive physics)
- The OPERA experiment at Gran Sasso (appearance numu oscillations)
- The IceCube experiment at the South Pole (indirect search for dark matter; cosmic neutrino point sources search)

We also participated to the DELPHI experiment at LEP (tau physics, W physics).

Concerning the ILC detector R&D, the IIHE contributes within the LCTPC Collaboration to the development, the prototyping and the design of a time projection chamber (TPC) as a central tracker as foreseen by several detector concepts for the future international linear collider (ILC). The LCTPC Collaboration is presently designing and building a "Large Prototype" (LP) to be operated and tested within the EUDET framework at test beam facilities as the low-energy electron beam of DESY and the high-energy beams at CERN and Fermilab.

Our group is more specifically involved, in collaboration with the universities of Lund (Sweden) and Bonn (Germany), in providing the LP readout system and its integration in the common test beam data acquisition (DAQ) and trigger systems. The readout system will be mainly based on the existing front-end electronic from the ALICE experiment. However, a new amplifier has been developed at CERN for the LP which requests an external setting of several parameters like the polarity, the gain factor, etc. This implies a modification of the ALICE front-end printed circuits (Lund) and of the associated FPGA program (IIHE). The IIHE is also building an FPGA based electronic circuit needed to interface the EUDET trigger logic unit (TLU) to the LP electronic. In addition, the IIHE contributes, with the universities of Lund and Bonn, to the development of the LP DAQ and monitoring softwares.

The IIHE would participate as associate institute in the following EUDET activities:

- NA2 ("Detector R&D Network") by contributing to the exchange of information and to discussions between the members of the network, participating to the Annual Scientific Meeting and visiting other EUDET institutes.
- JRA2 ("Infrastructure for Tracking Detectors") and in particular to the TPC part as explained above.

In addition, the IIHE would be a user of the TA1 ("Transnational Access to DESY Test Beam Facility") and JRA1 ("Test Beam Infrastructure") activities in view of our participation in the LP test beams planned in 2008 and beyond.