

- electronics noise and hence vacuum phototriodes (VPTs) have been chosen for this region. Test results using VPTs demonstrate that they can fulfil the endcap requirements;
- considerable progress has been made in developing the readout electronics. The analog part consists of a multi-slope preamplifier and a gain-ranging ADC. The analog components have been produced in radiation-hard technology;
- a prototype crystal matrix (7×7 crystals) read out with APDs has been tested in a high-energy electron beam at CERN and has achieved an excellent energy resolution of 0.5% at 120 GeV;
- the Proto97 matrix with near-final mechanics for crystal support and preamplifier-crystal interface, as well as a full light-to-light readout including fibre-optic communication has been successfully tested during September and November 1997;
- a preshower detector consisting of two lead/silicon detector layers will be placed in front of the endcap calorimeter. A test of a small prototype including the complete electronic chain operating at 40 MHz has shown that the measured position and energy resolution meet the design requirements;
- detailed performance studies, carried out using GEANT simulations of the ECAL including the effects of electronics and pileup noise as well as the material in front of the calorimeter, have shown that the design figures for resolution and efficiency can be achieved.

In addition to this progress achieved since the submission of the Technical Proposal, overall optimization of the calorimeter project has been vigorously pursued. This optimization has also taken into account the desire to ensure full geometrical coverage, the requirements of the surrounding detectors, as well as matching the cost to the available financial resources.

A schematic view of the calorimetry and tracking system is shown in Fig. 1.2.

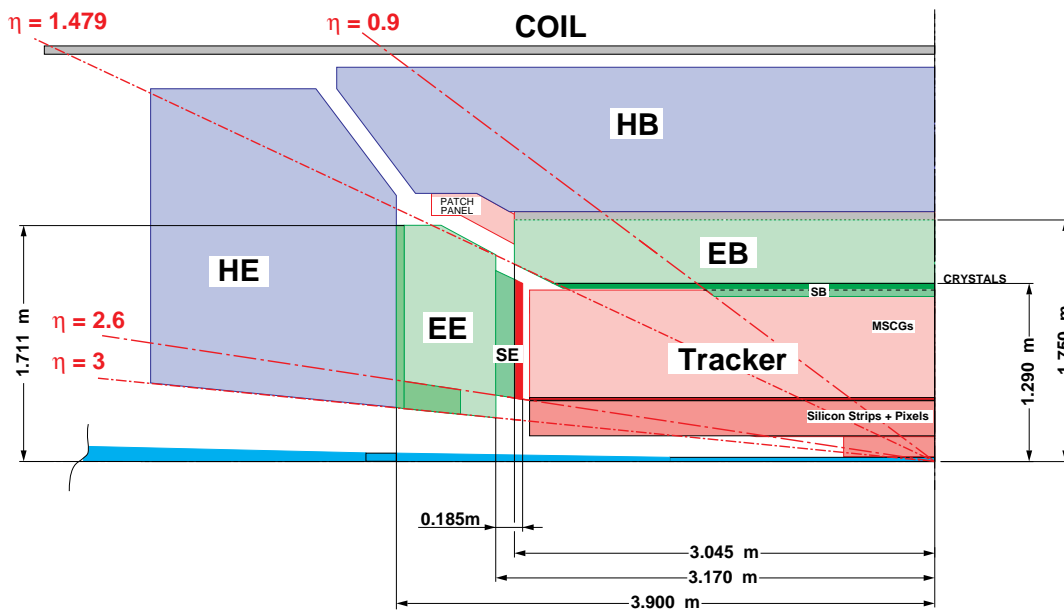


Fig. 1.2: Schematic view of one quadrant of the calorimetry and tracking system.