

3D sensor testbeam analysis

Description:

A detailed description and useful links to the "ATLAS 3d sensors" can be found [here](#).

Devoted test beam studies of 3D sensors are performed at CERN whose purpose are to test and quantify the performance of various types 3D devices. Beam tests periods in 2009 and in June 2010 were dedicated to study 3D sensors performance in magnetic field and at several beam incident angles. An upcoming beam test in October 2010 will be dedicated to study irradiated sensors.

Project tasks:

The project would involve working with Philippe Grenier on the analysis of data collected during the October test beam period. You will begin by understanding the setup used in the testbeam followed by manipulating the data to extract results and plots from an offline analysis of those data. This will involve writing code to plot meaningful quantities to extract results summarizing the effectiveness of the 3D sensors and making comparisons among multiple devices. The analysis part of the work will involve the use of [ROOT](#), for which some prior knowledge would be advantageous but it is not a requirement.

In addition to the beam test at CERN, more testing can be done at SLAC with a cosmic telescope.