

PROPOSAL TO TRANSNATIONAL ACCESS

Proposal:
Sensor Qualifying using the Silicon Lab.
upgraded within EUDET at DESY

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1 Goal of the Project

The silicon sensors foreseen for the luminometer of the ILD detector are required to be of excellent homogeneity over the whole sensitive surface. Prototypes have been developed on our specification by Hamamatsu corp. and delivered recently. A sensor is shown in Figure 1. Before assembling

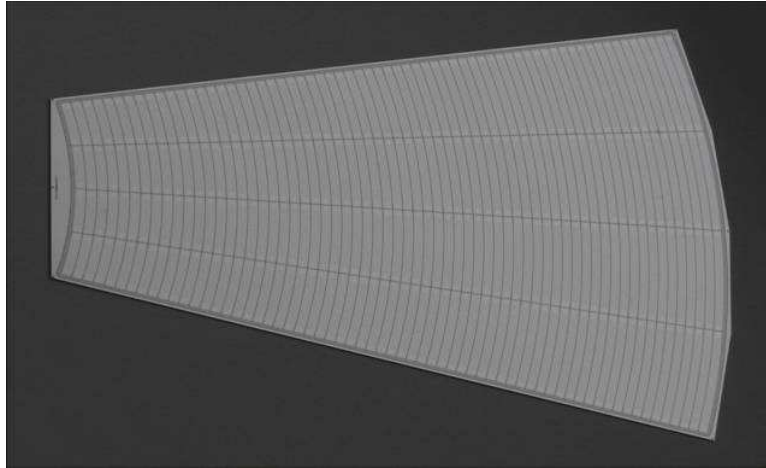


Figure 1: A silicon sensor prototype for LumiCal delivered by Hamamatsu corp. The sensor is subdivided in radial and azimuthal pads.

them for the use in the test-beam each sensor has to be characterised. Using the prob-station, shown in Figure 2, which was upgraded within the EUDET project at DESY, a joint effort will be made by people from Tel Aviv University and UST Cracow to perform a complete electrical test of each single pad on a batch of 5 sensors.

These tests will comprise measurements of:

- Capacitance as a function of the bias voltage.
- Current as a function of the bias voltage.

These measurements will be done with different schemes of potential connected to the guard-rings and neighbor pads.

The results of the measurement will be stored in a data-base under development for sensor qualifying.

In addition to the sensor quality measurements a second goal is to establish common standards within the laboratories involved and to develop the data-base as a common tool for future measurements.



Figure 2: The prob-station foreseen for the sensor quality measurements. The device was part of the infrastructure improvement done within EUDET.

2 Schedule

The Measurements will be prepared in a short visit (2 days) by I. Sadeh from Tel Aviv University. This visit will be devoted to prepare the sharing of the work between the laboratories included.

The measurement campaign will start in July 2009 at DESY. The measurements will be performed by the master-students from Tel Aviv University and UST Cracow, R. Schwartz (Tel Aviv, 4 weeks, starting July 14) and R. Zuzak (Two weeks, starting August 1.). A. Stern and M. Bergholz will store the measurement results in the data-base and prepare a report on the sensor quality based on these measurements. The report will be presented September 15.