Weekly Report

Shuiting Xin

November 23.2020

Task topic

QT task : Production Database (new!)

- This project is to develop the production database in module assembly.
- The database is to document the sensor, ASIC and module flex ID and their QC test results
- ➢ LGAD Sensor: I-V data , breakdown voltage , sensor ID
- ➢ ASIC: jitter , calibration data, ASIC ID
- ➢ Module flex: resistance and thickness ?
- He/she will developed the database to store production data for 10000+ modules, and develop user interface. The outcome of the study will be documented in an ATLAS internal note.
-

◇ Fully software work actually !
  ◇ Core Framework : purchase from ITK design
  ◇ Develop interface
  ◇ Visualized work

Task Topic

QT task : Module irradiation

- This project is to study the module performance after irradiation for the ATLAS HGTD detector. The study of module performance after irradiation is crucial to the High Granularity Timing Detector(HGTD). The irradiation effect for the LGAD sensor and ASIC of ALTIROC1_v2 has been studied by the HGTD group.
- This program aims to extend the knowledge of the irradiation effect by studying the performance mini-module with ALTIROC1_v3 after X-ray or proton (neutron) irradiation. The outcome of the study should be summarised in an internal note.

◇ Two sources of irradiation
   ◇ non-ionizing energy loss : inside senor
   ◇ Ionizing energy loss: surface, ASIC
◇ Need to do irradiation experiment