

Measurement results of IHEP-IMEv1 low gain avalanche devices and IHEP-IMEv2 sensor design for ATLAS HGTD

Tuesday, May 25, 2021 5:12 AM (18 minutes)

Low-Gain Avalanche Detector (LGAD) with time resolution better than 50ps has been chosen as the sensors for HGTD project and have so far been developed by several institutes. This talk will show the measurement results about 50um thick IHEP-IMEv1 LGAD sensors designed by the Institute of High Energy Physics (IHEP) and fabricated by Institute of Micro Electronics (IME). Beta source measurement results show that the time resolution of IHEP-IMEv1 sensors are better than 40ps and the collected charges are larger than 20fC before irradiation. The properties of IHEP-IMEv1 sensors fulfill the required specifications of sensors before irradiation for ATLAS HGTD project. Performance of the sensors after irradiation will also be shown. Furthermore, this talk will show the second version of sensor design for 15×15 sensor arrays, especially simulation results of process parameters for gain layer implantation which will be optimized for the sensors to meet irradiation requirements of the project.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

Funding information

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Session Classification: Sensor Posters: SS Position

Track Classification: Sensors: Sensors: Solid-state position sensors