Contribution ID: **22** Type: **not specified**

Electrical and timing performance of AC-LGADs

Thursday 19 November 2020 16:20 (20 minutes)

Low Gain Avalanche Diodes (LGADs) are characterised by a low to moderate gain (2 - 100), short rise time, high signal-to-noise ratio and exhibit excellent timing performance (30-40 ps), however fine pixelization of LGADs is difficult to achieve. To provide fine spatial resolution the AC-coupled LGAD (AC-LGAD) approach was introduced. In this type of device, the signal is capacitively induced on fine-pitched electrodes placed over an insulator. AC-LGAD prototypes are designed and fabricated at Brookhaven National Laboratory (BNL) and segmented in both pixel matrices and strips with different configurations. These prototypes are characterized by IV, CV and TCT scans, and their time resolution is measured by studying the time coincidence between signals generated in two sensors by beta particles from a 90Sr source. Test results of AC-LGADs fabricated at BNL are compared to those obtained at a test-beam at FNAL with 120 GeV protons and those of LGADs fabricated at BNL and HPK. Simulations are used to get insight on the generation of the signal induced on the hit pixels/strips and their neighbours.

Authors: TRICOLI, Alessandro (Brookhaven National Laboratory (US)); Dr GIACOMINI, Gabriele (Brookhaven National Laboratory (US)); D'AMEN, Gabriele (Brookhaven National Laboratory (US))

Presenter: TRICOLI, Alessandro (Brookhaven National Laboratory (US))

Session Classification: LGADs