



Contribution ID: 203

Type: POSTER

Characterization of Low Gain Avalanche Detectors (LGAD) irradiated with protons and neutrons

Tuesday, 2 September 2014 17:33 (1 minute)

This work presents new avalanche pad detectors with low gain (LGAD) fabricated with a technology based on APD but with a modified doping profile, in order to have detectors suitable to be used for tracking in high energy physics experiments (such as colliders) and resistant to the high radiation fluencies expected in the future LHC upgrade at CERN. If a significant improvement of the collected charge is found after heavy irradiation, this geometry can be directly applied to microstrip and pixels sensors.

A Sentaurus TCAD simulation was performed to predict the electrical behavior of the proposed structures since some of the new technological solutions might compromise the voltage breakdown properties. The capacitance behavior of these new devices is to be studied too, since an increase of the capacitance value will increase the noise, worsening the signal to noise ratio, even for the highest gain values.

In this work we show the electrical measurements and charge collection studies obtained with MIP and alpha radiations before and after irradiations with neutrons and protons at fluences up to 10^{15} cm^{-2} 1 Mev equivalent.

Primary author: PELLEGRINI, Giulio (Centro Nacional de Microelectrónica (IMB-CNM-CSIC) (ES))

Presenter: PELLEGRINI, Giulio (Centro Nacional de Microelectrónica (IMB-CNM-CSIC) (ES))

Session Classification: Poster Session