

## Gain measurements and spectral response of the latest IMB-CNM fabricated nLGAD

In the last few years, Low Gain Avalanche Detectors (LGAD) have demonstrated their outstanding performance when detecting high-energy charged particles. However, the very nature of electrons and holes under avalanche multiplication highlights that this good performance is diminished when they are to detect low penetrating particles (e.g. low-energy protons or soft x-rays). A novel design of an LGAD detector, the nLGAD, was designed and fabricated at CNM in order to try to overcome this drawback. A qualitative description of the nLGAD concept is presented in this work, along with gain response measurements under UV light of 369 nm, visible light of 404 nm and IR light of 1064 nm; all of them carried out on test devices of the last IMB-CNM nLGAD fabrication batch. The results demonstrate the potential of the nLGAD for experiments that imply the detection of low penetrating particles.

### Type of presentation (in-person/online)

in-person presentation

### Type of presentation (scientific results or project proposal)

Presentation on scientific results

**Primary authors:** Mr VILLEGAS DOMINGUEZ, Jairo Antonio (Consejo Superior de Investigaciones Cientificas (CSIC) (ES)); MANOJLOVIC, Milos (Consejo Superior de Investigaciones Cientificas (CSIC) (ES))

**Co-authors:** Dr PELLEGRINI, Giulio (Centro Nacional de Microelectrónica (IMB-CNM-CSIC) (ES)); MOFFAT, Neil (Consejo Superior de Investigaciones Cientificas (CSIC) (ES)); FERNANDEZ-MARTINEZ, Pablo (IMB-CNM, CSIC); Dr HIDALGO, Salvador (Instituto de Microelectronica de Barcelona (IMB-CNM-CSIC))

**Presenter:** FERNANDEZ-MARTINEZ, Pablo (IMB-CNM, CSIC)