Contribution ID: **35** Type: **Talk (invited speaker only) The talk is invitation only**

[E02] Development of innovative SiC detectors for harsh environments

Tuesday 25 October 2022 18:00 (30 minutes)

Harsh environments such as related to ionizing radiation and high temperature conditions can seriously degrade electronic devices. For example, their levels in next-generation fusion reactors, such as ITER, can severely compromise or even cause permanent failure of many key diagnostics devices that are presently used in D-D magnetically-confined fusion plasma devices. Therefore, expected impact of this project applies on space applications, homeland security, radiotherapy (Flash therapy conditions), HEP experiments (such as at CERN) and environmental monitoring.
This talk proposes to develop innovative radiation detectors that can be robustly operated in harsh environments. It requires the use of advanced microelectronic technology together with nanotechnology, and therefore, outcomes include the definition of completely new processing sequences. This new approach considers exploring novel uses and functionalities of 2D materials, such as the use of graphene in electrical contacts or alternative detection principles and signal management. The objective of this new development is to fabricate radiation detectors based on wide bandgap materials that can withstand high temperature (up to 500 ºC) and/or high radiation fluences (up to 1E16n/cm2).
In this talk, I will present the preliminary results of the electrical and charge collection studies of SiC detectors fabricated at Centro Nacional de Microelectrónica (CNM-CSIC) in Spain at high temeperatures and in Flash rtherapy conditions.

contact person e-mail

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

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

Session Classification: Detector R&D