12th International "Hiroshima" Symposium on the Development and Application of Semiconductor Tracking Detectors (HSTD12) at Hiroshima, Japan

Contribution ID: **228** Type: **ORAL**

First characterisation of 3D pixel sensors irradiated at extreme fluences.

Tuesday 17 December 2019 15:20 (20 minutes)

During the last decade at the Large Hadron Collider, the 3D pixel sensors have been widely used as particle tracking detectors for several experiments such as the Insertable B-Layer (IBL), ATLAS Forward Proton (AFP) in ATLAS and the TOTal cross section, Elastic scattering and diffraction dissociation Measurement (TOTEM) in CMS.
In this talk, we present for the first time, the 3D pixel sensors irradiated with neutrons up to a fluence of $3 \times 10^{17} n_{eq}/cm^2$. TCT measurements and charge collection efficiency showed that the sensors remain operative despite the unprecedented levels of irradiation similar of those estimated in the Future Circular Collider (FCC).

Submission declaration

Original and unpublished

Authors: MANNA, Maria (Centro National de Microelectronica - CNM-IMB-CSIC); GRIECO, Chiara (IFAE Barcelona (ES)); GRINSTEIN , Sebastian (IFAE Barcelona (ES)); HIDALGO, Salvador (Centro Nacional de Microelectrónica (IMB-CNM-CSIC) (ES)); PELLEGRINI, Giulio (Centro Nacional de Microelectrónica (IMB-CNM-CSIC) (ES)); QUIRION, David (Centro Nacional de Microelectrónica (IMB-CNM-CSIC) (ES)); TERZO, Stefano ((IFAE Barcelona (ES))

Presenters: MANNA, Maria (Centro National de Microelectronica - CNM-IMB-CSIC); PELLEGRINI, Giulio (Centro Nacional de Microelectrónica (IMB-CNM-CSIC) (ES))

Session Classification: Session9

Track Classification: Radiation damage and radiation tolerant materials