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Initial I-V and e-TCT measurements of a depleted CMOS sensor within the CERN-RD50 collaboration

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Future high energy particle physics experiments, such as the High Luminosity Large Hadron Collider (HL-LHC) and the proposed Future Circular Collider (FCC), will reach unprecedented energies and produce many billions of particles per second to probe into physics beyond the standard model. As part of these experiments, detectors will need to be capable of recording this incredibly large number of particles, and withstand damage sustained after prolonged use in these harsh environments.

In this work we present initial I-V and Edge Transient Current Technique (e-TCT) measurements of a Depleted Monolithic Active Pixel Sensor (DMAPS) prototype, "RD50-MPW2". This prototype is being developed by the CERN-RD50 collaboration to study these sensors for future particle physics experiments and has been recently fabricated in the 150 nm High-Voltage CMOS (HV-CMOS) process from LFoundry.

Primary authors: FRANKS, Matthew Lewis; IRMLER, Christian (Austrian Academy of Sciences (AT)); MANDIC, Igor (Jozef Stefan Institute (SI)); MARCO HERNANDEZ, Ricardo (CERN); MARINAS PARDO, Carlos (Univ. of Valencia and CSIC (ES)); POWELL, Samuel (University of Liverpool (GB)); SIEBERER, Patrick (Austrian Academy of Sciences (AT)); STEININGER, Helmut (Austrian Academy of Sciences (AT)); VILELLA FIGUERAS, Eva (University of Liverpool (GB)); VOSSEBELD, Joost (University of Liverpool (GB)); ZHANG, Chenfan (University of Liverpool (GB)); BERGAUER, Thomas (Austrian Academy of Sciences (AT)); CATALAN, Ana (IFIC (CSIC-UV)); CASSE, Gianluigi (University of Liverpool (GB)); BARBERO, Marlon B. (CPPM, Aix-Marseille Université, CNRS/IN2P3 (FR)); PANGAUD, Patrick (Aix Marseille Univ, CNRS/IN2P3, CPPM, Marseille, France); MASSARI, Nicola (FBK); CASANOVA MOHR, Raimon (The Barcelona Institute of Science and Technology (BIST) (ES)); GRINSTEIN, Sebastian (IFAE - Barcelona (ES)); FORSTER, Fabian Alexander (IFAE Barcelona (ES)); VILA ALVAREZ, Ivan (Instituto de Física de Cantabria (CSIC-UC)); HELMQVIST, William (U. Lancaster); MUENSTERMANN, Daniel (Lancaster University (GB)); MUNOZ CHAVERO, Fernando (Universidad de Sevilla (ES)); HINOJO MONTERO, Jose Maria (Universidad de Sevilla (ES)); LOPEZ MORILLO, Enrique (Universidad de Sevilla (ES)); PALOMO PINTO, Francisco Rogelio (Universidad de Sevilla (ES))

Presenter: FRANKS, Matthew Lewis

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