

Session J: Dosimetry and Facility

Chair: F. Ravotti and J.-R. Vaillie

- J-1 The use of a scanning electron microscope with electron beam lithography capability as a micro-beam irradiator.**
Yago Gonzalez, Jerome Boch, Julien Mekki, Nicolas J-H. Roche, Stephanie Perez, Christelle Deneau, Frederic Saigne, Laurent Dusseau : Université Montpellier 2, IES
Frederic Pichot : Université Montpellier 2, CTM
Eric Lorfèvre : CNES

A novel facility and technique is presented to realize controlled localized irradiation on ICs. Study of dose sensitivity of particular devices or circuit elements is enabled with this tool.

- J-2 The effect of magnetic field on diodes used as NIEL counters.**
Igor Mandic, Igor Sera, Vladimir Cindro, Irena Dolenc, Andrej Gorisek, Gregor Kramberger, Marko Mikuz : Jožef Stefan Institute
Federico Ravotti, Maurice Glaser, Sebastien Franz : CERN
Jochen Hartert : Physikalisches Institut Universität Freiburg

Diodes used as NIEL counters in high energy physics experiments operate in strong magnetic field which influences their performance. Measurements of magnetic field effects on these diodes before and after irradiation are presented.

- J-3 LHC RadMon SRAM detectors used at different voltages to determine the thermal neutron to high energy hadron fluence ratio.**
Daniel Kramer, Markus Brugger, Christian Pignard, Ketil Roed, Giovanni Spiezia, Thijs Wijnands : CERN
Vit Klupak, Ladislav Viererbl - NRI

Thermal neutron SEU cross-section of the RadMon detector's SRAM memory was measured at different voltages. A method profiting from the difference in response compared to high energy hadrons is proposed and tested in mixed fields.

Posters for Session J

PJ-1 Dose measurements and Geant4 calculations on PMOS dosimeters manufactured with different oxide thicknesses and gate metals.

Anna Canals, Pierre Pourrouquet, Christian Charty : TRAD
Bruno Azais, Philippe Charre, Gérard Auriel : Centre d'étude de Gramat, DGA
Gérard Sarabayrouse : LAAS-CNRS and Toulouse University

Twelve types of MOSFET dosimeters have been manufactured: four different oxides thickness ranging from 0.5 μ m to 2.4 μ m, were combined with three gate metals. They have been tested under several energy irradiation configurations.

PJ-2 Extended Bonner spheres for characterising neutron fields for single-event effects testing.

Xiao Xaio Cai, Simon Platt : University of Central Lancashire
Stephen Monk : Lancaster University

We show how an extended Bonner sphere can be optimised for use as a proxy for devices subject to neutron-induced SEE. Such a detector can be used to characterise neutron fields for SEE testing.

PJ-3 Comparison of a Tissue Equivalent and a Silicon Equivalent Proportional Counter Microdosimeter to High-Energy Protons During a Simulated Solar Particle Event.

Brad Gersey, Richard Wilkins : NASA Center for Radiation Engineering and Science for Space Exploration Prairie View A&M University

Tissue equivalent and silicon equivalent proportional counter microdosimeters were exposed to protons ranging in energy from 30-160 MeV during a simulated solar particle event. Cumulative absorbed dose was 23% higher for the silicon microdosimeter.