

G-RAD Workshop - Grenoble Radiation Testing of semiconductor devices and systems



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Fast neutron GENESIS platform

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The GEnerator of NEutrons for Science and IrradiationS (GENESIS) produces a flux of fast neutrons at an energy of 14 MeV (or 2.5 MeV). The neutron source is provided by an electrostatic accelerator delivering 220 keV deuterons onto a tritiated (or deuterated) target. It is used both for academic research (nuclear physics experiments, detector tests) and irradiations. Lately it was widely used to irradiate micro-electronics components in order to investigate their resistance to neutron flux. The facility is operated by the Laboratory of Subatomic Physics and Cosmology (CNRS, G-INP, UGA) located on the scientific polygon of Grenoble, next to ILL and ESRF.

Over the last few years, the facility was upgraded mainly to boost the neutron flux and improve the reliability of the machine. A compact ECR ion source was installed to produce a continuous and intense deuteron beam. Significant shielding was also added to the existing infrastructure in order to support the neutron flux increase. Presently, the maximum 14 MeV neutron flux reaches $5.10^7 \text{ n.s}^{-1}.\text{cm}^{-2}$ at the location of the sample.

The facility and its performances will be presented, as well as different types of applications.

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Session Classification: Session 4 - Alternative Testing Methods