

# 41st RD50 Workshop on Radiation Hard Semiconductor Devices for Very High Luminosity Colliders (Sevilla, Spain)



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## Pulsed and continuous neutron beams at the CNA HISPANOS facility

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Neutrons play a key role in many aspects of science and technology. Just to mention some examples, neutrons are responsible for the nucleosynthesis of elements in the stars or the functioning of fission and fusion reactors, but they are also a source of problems due when one considers the damage that they cause to, for instance, cells in radiotherapy cancer treatments or electronics devices in almost any environment, from flying airplanes to underground accelerator facilities. Therefore, neutron beams are needed for research in nuclear reactions, detectors tests, dosimetry, R2E, etc.

In Spain, the CNA HISPANOS facility in Seville is the only accelerator-based neutron beam facility. AT HISPANOS, neutrons with energies ranging from thermal ( $\sim 25$  meV) to fast (up to 10 MeV) are produced by means of  ${}^7\text{Li}(p,n)$ ,  ${}^2\text{H}(d,n)$  and  ${}^8\text{Be}(p/d,n)$  reactions. The beams can be continuous or bunched in pulses of only 2 ns, which allows for time-of-flight experiments or time resolved detector tests. The ion beam currents of a few  $\mu\text{A}$  provide fast neutron fluxes of about  $1e9$  n/s, reaching doses of  $\sim 1$  Sv/h at at 30 cm from the target.

Access to HISPANOS is available free of charge through the Transnational Access projects H2020-ARIEL and H2020-EUROlabs.

**Co-authors:** FERNANDEZ MARTNEZ, Begona; GOMEZ-CAMACHO, Joaquin (Universidad de Sevilla); QUE-SADA MOLINA, Jose Manuel (Universidad de Sevilla (ES)); MILLAN CALLADO, Maria Angeles (Universidad de Sevilla (ES)); PEREZ MAROTO, Pablo (Universidad de Sevilla)

**Presenter:** Dr GUERRERO SANCHEZ, Carlos (Universidad de Sevilla (ES))

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