

Development of gamma insensitive semiconductor based diagnostics to qualify intense thermal neutron fields at the e_LiBANS facility.

Tuesday 26 February 2019 10:20 (20 minutes)

Compact silicon and silicon-carbide detectors were developed to qualify and monitor the intense thermal neutron field produced at the e_LiBANS facility in Torino, where typical fluence rates are of the order of $2 \times 10^6 \text{ cm}^{-2}\text{s}^{-1}$. The devices are sensitized to neutrons by means of a ^6LiF deposit process optimized to maximize the neutron capture probability and the subsequent detection of the alphas and tritons reaction products. This communication describes the study of the performances of these detectors, based on dedicated measurement campaigns, in terms of linearity, gamma insensitivity and radiation hardness. Applications in spatial field mapping and in moderator based spectrometry are shown.

Primary author: COSTA, Marco (Universita e INFN Torino (IT))

Co-authors: BEDOGNI, Roberto; MONTI, Valeria (Universita e INFN Torino (IT)); DURISI, Elisabetta (INFN - National Institute for Nuclear Physics); FERRERO, Marco (Universita e INFN Torino (IT)); SANS PLANELL, Oriol (Universita & INFN Torino); VISCA, Lorenzo (Universita & INFN Torino); POLA, Andrea (Politecnico & INFN Milano); GOMEZ ROS, Jose Maria (Ciemat)

Presenter: COSTA, Marco (Universita e INFN Torino (IT))

Session Classification: Session 4: Technologies and Applications (1)