

Silicon Photo-Multiplier radiation hardness tests with a beam controlled neutron source

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We report radiation hardness tests performed at the Frascati Neutron Generator on silicon Photo-Multipliers, semiconductor photon detectors built from a square matrix of avalanche photo-diodes on a silicon substrate. Several samples from different manufacturers have been irradiated integrating up to 7×10^{10} 1-MeV-equivalent neutrons per cm^2 . Detector performances have been recorded during the neutron irradiation and a gradual deterioration of their properties was found to happen already after an integrated fluence of the order of 10^8 1-MeV-equivalent neutrons per cm^2 .

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