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X-ray technological irradiation for TID studies on silicon sensor and electronic devices in a medical facility

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Total Ionizing Dose (TID) effects tests are required not only for silicon particle sensors developed in high energy physics experiments, but also for electronic devices and elements used in commercial, automotive and space applications. These tests and studies can be performed not only in facilities explicitly built for this mission, but also in medical or biological research facilities when some minima requirements are satisfied. Generally this irradiations can be performed without interfering with the medical and biological tasks of the facility. In this talk will be shown why these studies are extremely relevant for research and industries, how to perform these irradiations and the minimum instrumentation required for this type of studies. Finally will be described the planification and realization of SiPM x-ray irradiations for TID characterization realized in the Italian TIFPA-INFN Trento Center laboratory, using instruments originally realized for medical or biological irradiations.

References

- [1] Di Ruzza, B.; Possibility of Total Ionizing Dose Effects measurements for LHC experiments elements in a medical facility: the TIFPA-INFN experience
doi: 10.22323/1.397.0247; <https://pos.sissa.it/397/247/>
- [2] Di Ruzza, B. et al.; Radiation damage on SiPMs for Space Applications
<https://arxiv.org/abs/2112.08089>

Abstract Category

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