

Proton and x-ray irradiation of silicon devices at the TIFPA-INFN facilities in Trento (Italy)

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Proton and x-ray irradiation are essential procedure required to characterize the effects of TID and displacement damage designing silicon sensors for charged particle.

A The experimental area of a new new medical facility located in Trento (Italy) allow to perform irradiation on silicon pixel sensors, SiPM, and experimental electronic devices using protons with energy in the range of 70-230 MeV. The irradiation isocenter is in air, the circular beam spot can achieve a radius up to 3 cm with both uniform or gaussian profiles and a fluence up to 10^{13} protons/cm². This energy range is especially suitable for testing devices oriented to medical and space applications, but is also useful for high-energy detector upgrades. In the TIFPA-INFN laboratories is located also a tungsten anode x-ray source allowing a complete characterization of experimental silicon devices.

In this talk will be described the experimental area of the Trento proton medical irradiation facility, and some results of the proton and x-ray irradiation on prototype sensors for charged particle.

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