

Online proton detection from high power lasers with high repetition rates

mercredi 11 mai 2022 18:00 (1 heure)

High power laser interactions lead to the production and acceleration of bunches of particles including protons, which are promising for fundamental physics studies and many applications such as radiotherapy and radioisotope production. In the detection of laser-accelerated protons, passive detectors like imaging plates, that are suitable for single-shot laser experiments are commonly deployed. However, a new generation of high-power lasers operates at high repetition rates up to 10 Hz. While this is interesting for laser applications, they present another challenge for proton detection at each shot. This is why the search for online detectors that can be suited for such high repetition rates has been the subject of many investigations. We have therefore tested the possibility of a CMOS detector bought from Teledyne, for online proton detection. In this poster, I will present the challenges faced and the results obtained in the use and calibration of the detector.

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Classification de Session: Posters