

Flash Radiation therapy with charged particles is a promising technique to improve treatment efficacy. This technique relies on using high dose rates to treat tumors, after the observation that the survival of healthy tissue was enhanced when compared to treatments deploying the same dose at a lower dose rate. The practical use of the technique requires a high level of control and monitoring of the beam used to deliver the dose. One of the critical parameters to be monitored is the fluence of particles. The high dose rate used in this therapy creates a challenge to deliver the correct dose to the tumor. Particle physics experiments such as ATLAS and CMS are upgrading their detectors to deal with the increasing luminosity of the Large Hadron Collider (LHC). They will have to deal with large fluxes and will be exposed to large doses of radiation. The devices are being developed to have timing resolution better than a hundred picoseconds and radiation tolerance up to 200 MRad. The devices are novel solid-state sensors, the Low Gain Avalanche Detector (LGAD), a Silicon-based device. These sensors have been studied to be used in the High Luminosity LHC, which requires a solution for particle detection with high timing resolution and radiation tolerance. The LGADs used in ATLAS, for example, possess a spatial resolution of 1.3 mm by 1.3 mm and timing resolution better than 100 ps. These numbers indicate that it will be possible to monitor Flash beams in a time-resolved manner and provide real-time feedback to the machine.