

Characterization of 1 cm² Low Gain Avalanche Diodes for Space Applications

This work explores the possibility of using Low Gain Avalanche Diodes (LGADs) for tracker-based experiments studying Charged Cosmic Rays (CCRs) in space. While conventional silicon microstrip sensors provide spatial information about the charged particle passing through the tracker, LGADs have the potential to provide additional timing information. For the first time, it has been demonstrated that an LGAD with an active area of about 1~cm² can achieve timing resolution (jitter) of less than 40~ps. The study includes laboratory measurements such as electrical characterization of LGADs, gain measurements using LED and an Infrared laser, as well as jitter measurements.

Primary author: CAVAZZINI, Leo (Università di Trento)