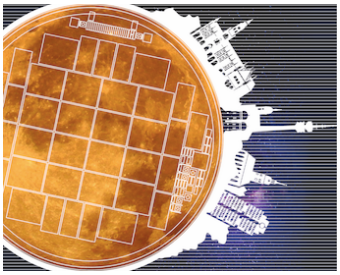

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Development of Strip-type Low-Gain Avalanche Detectors

Low-Gain Avalanche Detectors (LGADs) have potential to be a critical element in applications for collider physics, medical instrumentation, etc., with its high spatial and timing resolution. The strip-type LGAD detector is required in large-scale application for covering wide area with low cost. We have fabricated LGAD strip sensors, DC-type, together with LGAD diodes, and evaluated their characteristics including such as spatial response to infrared laser, before and after proton and neutron irradiations. We have observed that a substantial gain is obtained in the inter-strip region after irradiation where the gain is unity before irradiation. The radiation-induced gain variation and potential improvement to obtain gain in the inter-strip region before irradiation are discussed with TCAD simulations.

KEK: Yoshinobu Unno, Koji Nakamura
Univ. Tsukuba: Kyoji Onaru, Sayaka Wada, Kazuhiko Hara, Junki Suzuki
HPK: Kazuhiksa Yamamura, Shintaro Kamada, Yuhei Abo

Primary author: UNNO, Yoshinobu (High Energy Accelerator Research Organization (JP))

Presenter: UNNO, Yoshinobu (High Energy Accelerator Research Organization (JP))