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Test Beam Measurements of BNL and HPK AC-LGADs

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We present measurements of AC-LGADs performed at Fermilab's test beam facility using 120 GeV protons. We studied the performance of various strip and pixel sensors that were produced by BNL and HPK. The measurements are performed with our upgraded test beam setup that utilizes a high precision telescope tracker, and a simultaneous readout of up to 6 channels per sensor, which allows detailed studies of charge sharing characteristics. These measurements allow us to assess the differences in designs between different manufacturers and optimize them, based on experimental performance in test-beams. We then study several reconstruction algorithms to optimize position and time resolutions that utilize the charge sharing properties of each sensor.

Primary authors: MOLNAR, Adam (Fermi National Accelerator Laboratory); MADRID, Christopher (Fermi National Accelerator Lab. (US)); TRICOLI, Alessandro (Brookhaven National Laboratory (US)); APRESYAN, Artur (Fermi National Accelerator Lab. (US)); SAN MARTÍN, Claudio (Universidad Técnica Federico Santa María); PEÑA, Cristián (Fermi National Accelerator Lab. (US)); D'AMEN, Gabriele (Brookhaven National Laboratory (US)); GIACOMINI, Gabriele (Brookhaven National Laboratory (US)); NAKAMURA, Koji (High Energy Accelerator Research Organization (JP)); HELLER, Ryan (Fermi National Accelerator Lab. (US)); XIE, S. (FNAL); KITA, Sayuka (University of Tsukuba); Prof. BROOKS, William (Universidad Técnica Federico Santa María)

Presenter: MADRID, Christopher (Fermi National Accelerator Lab. (US))

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