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Recent development of HPK AC-LGAD detectors

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Particle detectors at future lepton or hadron colliders will require covering a very large area with a tracker with fine spatial resolution of $O(10)\mu\text{m}$. A timing capability of $O(10)\text{ps}$ in addition should improve the tracking reconstruction, particle identification of charged particles and mass measurement of newly discovered particle. Capacitive-coupled Low-Gain Avalanche Diode (AC-LGAD) is a semiconductor tracking detector with precise timing resolution and spatial resolution developed by KEK and Tsukuba group collaborating with Hamamatsu Photonics K.K. (HPK). In this presentation we will focus about recent status of the development of AC-LGAD detector and possibility of improvement for timing resolution and radiation tolerance.

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Classifica Sessioni: Invited 2