

AC-coupled LGAD and Large-area LGAD for electron-positron collider

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The Low Gain Avalanche Diode (LGAD) is a high-precision time detection technology in high-energy experimental physics. There are two main types LGAD for electron-positron collider: large-area LGAD (LA-LGAD) and AC-coupled LGAD (AC-LGAD). The large-area LGAD can greatly reduce the number of electronic readout channels and reduce experimental costs. AC-LGAD can reconstruct the particle position through the signal sharing of multiple AC-coupled readout pads. Both two LGADs are based on unsegmented multiplication PN junctions to avoid the fill factor losses. IHEP designs an AC-LGAD with 4 AC pads. Its time resolution and spatial resolution are studied by picosecond laser.

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