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Status of pixel detector R&D for future Linear Colliders

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The physics aims at future high-energy Linear e+e- Colliders (ILC and CLIC), set very high precision requirements on the performance of the vertex detector. Moreover, these detectors have to be well adapted to the experimental conditions, such as the beam spill structure and the presence of beam-induced backgrounds. The principal challenges are: a point resolution of a few micron, ultra-low mass (˜0.1-0.2%X0 per layer), very low power dissipation (compatible with air/N2 cooling) and pulsed power operation, complemented with ˜10 ns time stamping capabilities for the CLIC case. An overview and recent progress of a broad R&D program for pixel detectors for future linear colliders, encompassing fully integrated technologies (CMOS/MAPS, FPCCD, DEPFET, etc) as well as hybrid technologies, will be presented.

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