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【353】 FCC-ee vertex detector requirements and performance simulation

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The FCC-ee is the first stage of the Future Circular Collider program which envisions a new 100 km long circular collider ring. High-intensity collisions of electrons and positrons with energies of 90 to 365 GeV make the FCC-ee an electroweak, Higgs and top factory.

Especially the extremely large statistics at the Z-pole puts stringent requirements on the detectors. The innermost vertex detector has to precisely locate the collision vertices, while adding only a minimal amount of material to avoid multiple scattering deteriorating the detector performance.

This contribution discusses performance simulations of various vertex detector geometries and how depleted monolithic active pixel sensors (DMAPS) can fulfill the tight vertex detector requirements.

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