

# Design, performance and future prospects of vertex detectors at the FCC-ee

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The CERN proposed  $e^+e^-$  Future Circular Collider (FCC-ee) is designed as an electroweak, flavour, Higgs and top factory with unprecedented luminosities. Many measurements at the FCC-ee will rely on the precise determination of the vertices, measured by dedicated vertex detectors.

All vertex detector designs use Monolithic Active Pixel Sensors (MAPS) with a single-hit resolution of  $\approx 3 \mu\text{m}$  and a material budget as low as  $0.3\% X/X_0$  per detection layer, which is within specifications for most of the physics analyses.

This contribution presents the status of the fully engineered vertex detectors, their integration with the collider beam pipe, and discusses their predicted performance using DD4hep full simulation. A concept for an ultra-light vertex detector using curved wafer-scale MAPS is also presented, which allows reducing the material budget to nearly one-fifth. This improves the vertexing capabilities, especially for heavy flavour decays, such as  $B^0 \rightarrow K^{*0+}$ .

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