

# Eleventh International Workshop on Semiconductor Pixel Detectors for Particles and Imaging



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## 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  $0.25\% X/X_0$  per detection layer, which is within specifications for most of the physics analyses.

This contribution presents the status of the R&D on fully engineered vertex detector, together with the challenges due to its cooling and integration with the collider beam pipe. Discussions on an ultra-light vertex detector layout using curved wafer-scale MAPS are also presented, which allows reducing the material budget by about a factor of four, at the expenses of some losses in efficiency.

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