

Prototyping and R&D for the CMS Phase 2 Outer Tracker End Caps

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For its future tracker, CMS will utilise two different module types throughout the tracker. Above radii of 60 cm the end caps will be equipped with modules composed of two closely spaced silicon strip sensors, whereas at smaller radii it will be equipped with modules made of a silicon strip and pixel sensor. The support structures foreseen in the CMS end caps are half-disks of diameter 2.4 m that will be equipped with modules on both sides. A combination of four half-disks with alternating module positions ensures hermetic coverage for particles originating from the interaction point. These so-called dees are highly integrated sandwich structures that provide the necessary mechanical support and at the same time integrate cooling and positioning inserts for the modules. To verify the concept a small-scale prototype has been developed and built at DESY. We will report on the design and assembly concept, lessons learned from the first prototype, results from thermal and mechanical measurements, and ongoing generic R&D efforts.

Summary

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