

The Mu3e Detector and prototyping and tooling for the Mu3e vertex detector

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The Mu3e experiment searches for the lepton flavour violating decay $\mu \rightarrow eee$ with an ultimate aimed sensitivity of 1 event in 10^{16} decays. This goal can only be achieved by reducing the material budget per tracking layer to $X/X_0 \approx 0.1\%$. For this purpose, gaseous helium is chosen as coolant, while High-Voltage Monolithic Active Pixel Sensors (HV-MAPS) thinned to $50\ \mu\text{m}$ constitute the baseline for the vertex detector.

This talk will show the detector concept, focusing on the technical aspects of the pixel tracker and its several challenges. As the construction phase is now approaching, this talk will also provide an overview of the prototyping phase. Details on the custom tooling for chip placement, ladder and module construction are shown, along with results on the recent chip submission, MuPix10.

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