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Type: Talk (invited speaker only) The talk is invitation only

[D01] MuPix: an HV-MAPS for the Mu3e experiment

Tuesday 25 October 2022 13:35 (30 minutes)

Mu3e is an experiment based at PSI which searches for the charged lepton flavour violating decay $\mu \rightarrow eee$ with an aimed sensitivity of 1 event in 10^{16} decays. The low energy of the decay products imposes harsh constraints to the momentum resolution and, ultimately, to the material budget. Among the several measures to minimize the material budget, the vertex detector adopts the HV-CMOS technology. Thanks to this, the chips can be thinned to 50 μm while keeping high efficiency and time resolution. In addition, the powering and data transmission is performed by means of kapton-aluminum High Density Interconnects, which serve as mechanical support as well. Starting from the detector concept, this talk will outline the challenges faced by the pixel detector chip, the MuPix, and the solutions adopted. Finally, the latest results from the R&D phase and the first detector prototypes will be shown.

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