

## Overview of the Micro Vertex Detector for the PANDA experiment

The fixed target experiment PANDA will use cooled antiprotons that will be available at FAIR in Darmstadt. Its innermost tracker is the Micro Vertex Detector (MVD), specially designed to ensure the secondary vertex resolution for the discrimination of short-lived charmonium states. Hybrid epitaxial silicon pixels and double sided silicon microstrips will equip four barrels surrounding the interaction point and six forward disks.

The experiment features a triggerless architecture with a 160 MHz clock signal, therefore the MVD has to run with a continuous data transmission with hits which will have precise timestamps. In addition the energy loss of the particles in the sensor will be measured as well. The challenging request of a triggerless readout suggested to develop custom readout chips for both pixel (ToPix) and microstrip (PASTA) devices.

The powering and cooling of the readout are challenging since the routing and the MVD services are foreseen in the backward region only.

Since the simulations show that the main component affecting the material budget of the MVD is the cabling, aluminum interconnections are foreseen instead of copper in the active volume.

The support structures are made of carbon fibers and highly thermal conductive carbon foam with embedded cooling pipes underneath the readout chips.

Detector prototypes have been built and tested to validate the design of each component and the triggerless readout. An overview of the project will be reported.

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