9. Annual MT Meeting



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## Status of the MIMOSIS-project

Tuesday 10 October 2023 11:18 (13 minutes)

The CMOS Sensor MIMOSIS is being developed to equip the Micro Vertex Detector (MVD) of the CBM experiment at FAIR in Darmstadt, Germany. It will feature 1024 × 504 pixels and combine a time resolution of 5  $\mu$ s with a spatial resolution of ~ 5  $\mu$ m. Moreover, it will have to handle a peak rate of 80 MHz/cm<sup>2</sup> and radiation doses of 5 MRad and up to 10e14 neq/cm<sup>2</sup> per year. It is being developed within a joined R&D program of IPHC Strasbourg, Goethe University Frankfurt and GSI.

The first full size sensor prototype MIMOSIS-1 was developed and tested intensely. It hosts conventional DC-coupled pixels and innovative AC-coupled pixels suited to fully deplete the sensing element with voltages of up to 20V. The detection performances of the device, its immunity to the above-mentioned radiation doses and heavy ion impacts was studied in the laboratory and in a series of beam tests at DESY, CERN, and GSI. The contribution will summarize the design considerations of MIMOSIS and discuss the results obtained.

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