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NEXT prototyes based on Micromegas readouts

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The NEXT experiment will look for neutrinoless double beta decay in Xenon-136 in a high Pressure Time Projection Chamber (TPC). The detector is based on electroluminiscence light measured with photomultipliers and silicon photomultipliers (SiPMs). In parrallel with the baseline NEXT design an R\&D line based on Micromegas detectors with pixelized anode was developed as an option to detect both, energy and topology of the signals.

Micromegas are a good option in rare event searches (such as dark matter, axions or double beta decay) because of their high radiopurity, robustness and performance regarding energy resolution and pattern recognition.

In this R\&D prototype readouts based on Micromegas detectors were constructed to study their properties at different pressures and gas mixtures and also to test microbulk Micromegas in realistic conditions (electron tracks fully contained). Here we will present the results on the commissioning and performance of these prototypes.

for the collaboration

NEXT Collaboration

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