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A novel TPC concept for a fast tracker for MAGIX

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MAGIX is a new precision experiment, currently being developed at the Johannes Gutenberg University in Mainz, that will explore fundamental nuclear and particle physics at energies up to 100 MeV at the MESA high intensity electron beam.

To achieve its goals, MAGIX requires two short-drift, low material budget TPCs. Those detectors will feature a novel open field-cage concept to reduce the material budget and will be among the first major users of the new SRS+VMM3 readout system which will allow them to achieve readout rates above 100 kHz.

In this work, we will illustrate the most innovative aspects of this project and present the results of the first measurement campaigns.

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