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Results from the operation of a single-phase liquid xenon TPC

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Dual-phase liquid/gas xenon TPCs, detecting the charge signal via proportional scintillation in gaseous xenon, are a well-established detector technology to search for WIMP dark matter. However, the spatially uniform generation of the charge signal will be challenging at the scale of the next-generation detectors due to the size of the TPCs. The generation of the charge signal in the liquid xenon phase of a single-phase TPC is a promising option to circumvent this issue and leads to several improvements in the detected signal. We successfully operated a single-phase TPC demonstrator which exploits proportional scintillation in the strong electric field around very thin wires. In this talk we will present the results obtained with this detector.

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