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ProtoDUNE-SP performance and future plans

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Abstract

The Deep Underground Neutrino Experiment (DUNE) is an international experiment for neutrino science. Fundamental questions as the nature of matter and the evolution of the Universe may have an answer in neutrino physics, and DUNE will work to understand them.
It will consist of two neutrino detectors placed in the world's most intense neutrino beam. One detector will scan the neutrino beam near its source, at Fermilab. A second, much larger, will be installed 1300 away from the source, more than a kilometer underground, in South Dakota. Both detectors are using the novel Liquid Argon TPC technology with excellent calorimetric and particle identification capabilities, which will allow us to go deeper in understanding neutrino properties.
However, being a novel technology implies that there are still some questions to answer. For this reason two prototypes have been built at the CERN Neutrino Platform, ProtoDUNE SP and DP, the first of which was exposed to a test beam during 2018 and has been taking data during a year. Promising results have been achieved, encouraging a second run for them which will be the last milestone towards DUNE.

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