

Impact of xenon doping in the scintillation light in a large liquid-argon TPC

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The use of xenon-doped liquid argon is a promising alternative for large pure liquid-argon TPCs. Not only xenon-doped liquid argon enhances the light production, mitigating the possible suppression due to impurities, but also it increases the wavelength of the scintillation light, enlarging the effective Rayleigh scattering length and improving the detection uniformity. ProtoDUNE Dual-Phase is a 300-ton active volume LAr TPC, a prototype for the Deep Underground Neutrino Experiment (DUNE), a dual-site experiment for long-baseline neutrino oscillation studies, neutrino astrophysics and nucleon decay searches. ProtoDUNE Dual-Phase took cosmic muon data at CERN with pure liquid argon and with xenon-doped liquid argon for over a year. The impact of the presence of xenon in the scintillation light and its comparison with the pure liquid argon data will be presented. These results are of interest to any future large LAr TPCs.

TIPP2020 abstract resubmission?

No, this is an entirely new submission.

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