

Xenon doping of Liquid Argon for astroparticle detectors

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Liquid Argon (LAr) has a widespread use in astroparticle experiments dedicated to neutrino studies and Dark Matter searches. LAr scintillation light is produced in the far Ultraviolet (128 nm), posing technical challenges for collection and detection. While there are available multiple technologies for this task, already tested and well functioning, new solutions are being searched for. An interesting possibility is to dope LAr with Xenon. Ar excitation can be passed to Xenon, which also emits light at larger $\lambda=175$ nm. Xe photons can be detected more easily than Argon ones, and they bring other advantages, like larger Rayleigh scattering length, and increased yield. These characteristics can significantly impact detection capabilities for large volume LAr-TPC neutrino experiments. My talk will review present knowledge; recent tests, including those performed at CERN in the framework of the CERN Neutrino Platform, and an outlook for future use in the DUNE far detectors.

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