

Doped LAr as a Platform for Low-Energy Physics

LArTPCs are the technology of choice for many current and future neutrino experiments. Improving the performance of LArTPCs to signals with energies less than 10 MeV would substantially enhance the flagship analyses of experiments like DUNE, while potentially enabling the physics of solar neutrinos, dark matter searches, and neutrinoless double beta decay searches.

I outline the pathway and progress on R&D for photosensitive dopants, whose introduction into the LAr active medium has a potential to enable the detection of low-energy signals in large LArTPCs. This R&D program will demonstrate the feasibility and impacts of introducing doped LAr into current and future neutrino detectors at the kTon scale. I explain the impact of this technology on physics signals across energy ranges. I also introduce our ongoing tests of this technology in the TinyTPC test-stand at Fermilab.

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