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Doped LAr as a Platform for Low-Energy Physics

martedì 18 giugno 2024 17:30 (2 ore)

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 show results from ongoing tests of this technology in the TinyTPC test-stand at Fermilab.

Poster prize

No

Given name

Fernanda

Surname

Psihas

First affiliation

FNAL

Second affiliation

Institutional email

psihas@fnal.gov

Gender

Female

Collaboration (if any)

Autore principale: PSIHAS, Fernanda (FNAL)

Relatore: PSIHAS, Fernanda (FNAL)

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