



Contribution ID: 49

Type: **Oral Presentations**

## Positron Emission Tomography with Pixelized Liquid Argon Detectors

*Wednesday, 6 September 2023 11:20 (20 minutes)*

There have been significant advances in the use of Liquid Argon Time Projection Chambers (LArTPCs) for the study of neutrinos in recent years. The low-energy particle identification capabilities and scalability of LArTPCs with pixelated charge readout systems could provide enhanced performance in detecting the Compton scattering of photons used in medical imaging techniques such as Positron Emission Tomography (PET). This presentation will describe investigations of the optimization of LArTPCs for the detection of photons with energies corresponding to those used in PET scans, which already suggest the potential for significant improvement over traditional PET devices based on scintillation crystals. The details of a simulation that includes both charge and light collection in a pixel-based LArTPC will be described, as will the status of efforts to measure the performance of a prototype device using radioactive sources. Finally, preliminary plans for a larger-scale PET LArTPC device will be discussed.

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**Session Classification:** D5