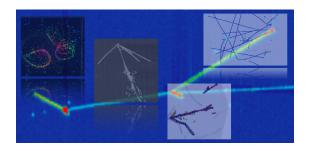
## **Neutrino Physics and Machine Learning 2023**



Contribution ID: 2 Type: Individual Talk

## Diffusion-Based Generative Modeling for LArTPC Images

Wednesday, 23 August 2023 16:25 (25 minutes)

Seeking to harness the power of generative modeling for neutrino physics, we have successfully generated high-fidelity images of track and shower particle event types. We implemented a diffusion model on the PILAr-Net public dataset comprising 2D images from a simulated Liquid Argon Time Projection Chamber (LArTPC). In this presentation, I will outline the methodology behind the score-based generative model developed by Song & Ermon in 2019, and measure the quality of our generated LArTPC images.

Primary authors: IMANI, Zeviel (Tufts University); WONGJIRAD, Taritree (Tufts University)

**Presenter:** IMANI, Zeviel (Tufts University)

**Session Classification:** Session 4