

Advancements in LArTPC event reconstruction on MicroBooNE data

Friday 19 July 2024 17:15 (15 minutes)

MicroBooNE utilizes an 85-tonne active volume Liquid Argon Time Projection Chamber (LArTPC) to pursue an ambitious physics programme including the search for oscillations between active and sterile neutrinos, and a broad range of cross section measurements and searches for new physics. LArTPCs are high-precision imaging detectors that capture fine details of particle interactions, driving the need for advanced reconstruction techniques. The principal reconstruction frameworks at MicroBooNE employ multi-algorithm, deep learning and tomographic techniques to address a range of pattern-recognition problems in reconstructing 3D images of neutrino interactions in order to fully exploit the LArTPC imaging capabilities. Enhanced signal processing and energy reconstruction, a crucial observable for numerous physics goals, has been achieved via deep learning and neutron tagging. This talk presents an overview of these techniques, which enable the MicroBooNE physics programme.

Alternate track

1. Computing, AI and Data Handling

I read the instructions above

Yes

Primary author: BRUNETTI, Maria Brigida (University of Warwick (GB))

Presenter: BRUNETTI, Maria Brigida (University of Warwick (GB))

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