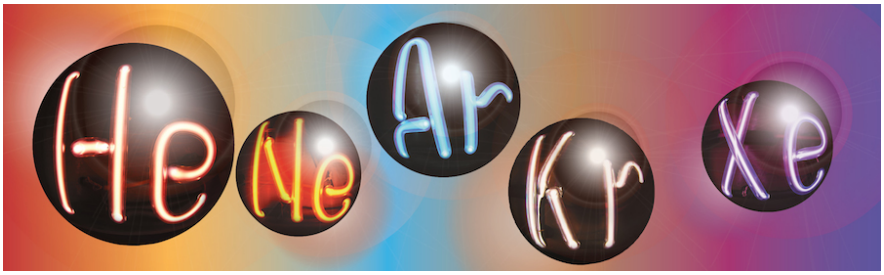

Contribution ID: **24** Type: **Presentation**

Measurement of the Light-Yield in MicroBooNE with Isolated Protons

Friday, September 23, 2022 2:20 PM (15 minutes)

The MicroBooNE detector is an 85-ton active mass Liquid Argon Time Projection Chamber (LArTPC) located on-axis along the Booster Neutrino Beam (BNB). It serves as a part of the Short-Baseline Neutrino (SBN) program at Fermilab, which was primarily designed to address the Miniboone low-energy excess. The primary signal in the LArTPC is ionisation, but the argon also emits large quantities of scintillation light. Prompt scintillation light in MicroBooNE is recorded with an array of 32 PhotoMultiplier Tubes (PMTs). The scintillation light is used to determine the timing of neutrino interactions and to reject cosmic-ray activity. We present a new method of measuring the light-yield using isolated proton events, which enables a position-dependent light-yield measurement to map the response of the detector across its volume. This method can be used to calibrate the light response in large-scale LArTPC detectors as well as to test assumptions used in simulating scintillation light.

Primary author: LI, Jiaoyang (The university of Edinburgh)

Presenter: LI, Jiaoyang (The university of Edinburgh)

Session Classification: Signal reconstruction

Track Classification: Detector techniques (HV, purification, cryogenics, calibration etc.)