

## MicroBooNE's Detector Physics Program and Stability throughout its 7 Years of Data Collecting

*Monday 6 November 2023 15:15 (25 minutes)*

The MicroBooNE experiment is a Liquid Argon Time Projection Chamber (LArTPC) placed along Booster Neutrino Beam (BNB) at Fermilab. MicroBooNE ran its physics and R&D runs from 2015 through 2021. Its primary physics goal is to contribute to addressing the elusive short-baseline MiniBooNE low energy excess. MicroBooNE records and utilizes both the ionization charge and scintillation light produced inside the TPC to select and reconstruct its events. To properly address the physics goals, it is crucial to properly understand how the detector evolves over time and perform continuous calibrations. This means performing state of the art measurement of detector physics quantities such as electron lifetime, diffusion, as well as paying close attention to the light yield. It is also very important to look at the performance over time. This talk will go over what MicroBooNE has learned and measured throughout its nearly continuous 7 years of running regarding detector physics measurements. Analysis of MicroBooNE performance over time be beneficial to the next many years long running Short-Baseline Neutrino (SBN) and DUNE programs to properly understand the important detector physics measurements in LArTPCs and their stability and aging over long periods of running.

**Authors:** DIURBA, Richard (University of Bern); BASQUE, Vincent (Fermilab)

**Presenter:** DIURBA, Richard (University of Bern)

**Session Classification:** Detector operation and performance