

# Electron attenuation measurement using cosmic ray muons in MicroBooNE

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MicroBooNE experiment in Fermilab uses the liquid-argon time-projection chamber (LArTPC) technology to study neutrino interactions in argon. A fundamental requirement for LArTPCs is to achieve and maintain a low level of electronegative contaminants in the liquid to minimize the capture of drifting ionization electrons. The attenuation time for the drifting electrons should be long compared to the maximum drift time, so that the signals from tracks that generate electrons with long drift paths can be detected efficiently. Our measurement of electron attenuation in the MicroBooNE LArTPC using cosmic-ray muons yields a minimum electron  $1/e$  lifetime of 18 ms under typical operating conditions, long compared to the maximum drift time of 2.3 ms.

## Summary

This study shows a measurement for electron lifetime in MicroBooNE detector using cosmic-ray muons.

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