



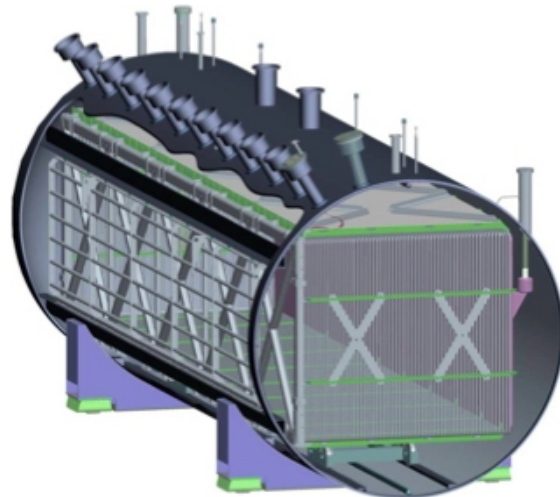
ILLINOIS INSTITUTE  
OF TECHNOLOGY



# MicroBoone Update

Ryan Dorrill (IIT)

Proton PMG, All Experimenters Meeting  
October 15<sup>th</sup> 2020





# Current Status and Plans

- MicroBooNE's **Virtual Collaboration meeting** is next week (10/19 – 10/23)
- MicroBooNE continues to run in “safe mode” (since March 21<sup>st</sup>) and is not taking data
- Cryogenics system remains on and is monitored by ND Cryo team
- Regular weekly LArTF walk-throughs by run coordinators and ND technical support team continues
- ICEBERG's filter regeneration work using MicroBooNE's LAr from outside dewar starts this week
- The MicroBooNE Technical Board have been reviewing proposals for the upcoming **R&D phase**
  - The experiment is not requesting 24/7 neutrino beam. However, if beam is running for other experiments, we can make good use of it in our studies



# Upcoming R&D Phase (Nov 2020)



MicroBooNE is considering a list of R&D Proposals:

- Xenon Doping of the MicroBooNE Detector (potentially relevant to DUNE's 4th module)
- Radon Doping of MicroBooNE for studies of low energy, MeV scale events
- Study of Single Photo-Electron Rates as a function of High Voltage (HV)
- Study of Single PE rates with reverse HV polarity
- Investigate HV Issues above 70kV (potentially relevant to protoDUNE 'streamer' events)
- Testing of the detector grounding scheme for the laser system (requested by DUNE)
- Study of Noise from Weiner Power Supply



Photo: wikimedia commons



# Recent Publications

- “*First Measurement of Differential Charged Current Quasielastic-like  $\nu_\mu$ -Argon Scattering Cross Sections with the MicroBooNE Detector*”
  - Accepted to Physical Review Letters (PRL)
  - <https://arxiv.org/abs/2006.00108>
- “*Measurement of Differential Cross Sections for  $\nu_\mu$ -Ar Charged-Current Interactions with Protons and no Pions in the Final State with the MicroBooNE Detector*”
  - Submitted to Physical Review D (PRD)
  - <https://arxiv.org/abs/2010.02390>
- There have been **nine publications** this year, and **19 public notes** so far in 2020



# Other News



- MicroBooNE physicist and Fermilab Lederman Fellow, Marco Del Tutto featured in APS News article: [Physics in a Virtual World](#)
- Jennifer Raaf to present “[Particle Physics Might Just Save Your Life: Practical Medical Applications Enabled by Fundamental Scientific Research at Fermilab](#)” as part of the Fermilab Arts and Lecture series