



1

# MicroBoone Update

Ryan Dorrill (IIT)

#### Proton PMG, All Experimenters Meeting December 3<sup>rd</sup> 2020









- 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 the Neutrino Division Cryo team
- Regular weekly LArTF walk-throughs continue with run coordinators and ND technical support team
- The MicroBooNE cryogenics system at LArTF is being used to regenerate filters for ICEBERG and ICARUS
- Proposals for the upcoming R&D phase are under final review by the MicroBooNE Technical Board
  - The initial emphasis is on studies which can be performed remotely, with minimal risk and personnel requirements, and with remote checklist shifts
  - 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



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
- Self-triggering studies for DUNE



### **Data Processing**

ILLINOIS INSTITUTE OF TECHNOLOGY





MicroBooNE has continued ramping up data production, including over 820,000 jobs last month – almost a 50% increase since Nov.



## **Recent Publications**



- "Measurement of Differential Cross Sections for ν<sub>µ</sub>-Ar Charged-Current Interactions with Protons and no Pions in the Final State with the MicroBooNE Detector" was accepted to PRD.
  - https://arxiv.org/abs/2010.02390
- "*Neutrino Event Selection in the MicroBooNE Liquid Argon Time Projection Chamber using Wire-Cell 3-D Imaging, Clustering, and Charge-Light Matching*" is on arXiv and submitted to JINST.
  - https://arxiv.org/abs/2011.01375
- *"A Convolutional Neural Network for Multiple Particle Identification in the MicroBooNE Liquid Argon Time Projection Chamber"*, arXiv:2010.08653,
  - submitted to PRD
  - https://arxiv.org/abs/2010.08653



• There have been **eleven publications** this year, and **19 public notes** so far in 2020



## **Other News**



Recent Talks by MicroBooNE Researchers:



- Friday December 4th, 4pm CST: José I. Crespo-Anadón of Columbia University to present on MicrBooNE's Readout, Triggering, and DAQ at the LEPLAr Workshop
- <u>Friday November 6th, 4pm CST</u>: Libo Jiang of Virginia Tech presented at the Joint Experimental-Theoretical Seminar: *Measurement of Differential Cross Sections for*  $v_{\mu}$ -Ar Charged-Current Interactions with Protons and no Pions in the Final State with the MicroBooNE Detector