

ELENA GRAMELLINI, PUBLICATION LIST [Inspire](#) [hep](#) [h-index: 36](#)

Dr. Gramellini is co-author of more 100 articles on a wide variety of topics in collaboration with MicroBooNE (46 papers), LArIAT (2), CDF (74) and restricted number of authors (3).

Recent papers with leading contributions:

- MicroBooNE Collaboration, 2021
Search for an anomalous excess of charged-current ν_e interactions without pions in the final state with the MicroBooNE experiment [Phys. Rev. D 105, 112004 \(2022\)](#). Dr. Gramellini shaped the analysis strategy for MicroBooNE's first flagship results, as she was the first to realize the importance of using the NuMI electron neutrinos as validation for the main search.
- MicroBooNE Collaboration, 2021
First Measurement of Inclusive Electron-Neutrino and Antineutrino Charged Current Differential Cross Sections in Charged Lepton Energy on Argon in MicroBooNE, [Phys.Rev.D 105 \(2022\) 5, L051102](#).
Building on her first work from the MicroBooNE NuMI group (see next bullet), Gramellini led the analysis development, internal review and sign-off as group leader.
- MicroBooNE Collaboration, 2021
Measurement of the Flux-Averaged Inclusive Charged-Current Electron Neutrino and Antineutrino Cross Section on Argon Using the NuMI Beam and the MicroBooNE Detector, [Phys.Rev.D 104 \(2021\) 5, 052002](#).
The first work from the MicroBooNE NuMI group was developed, completed and internally reviewed under Gramellini's guidance as group leader.
- LArIAT Collaboration, 2021
Measurement of the (π^- , Ar) Total Hadronic Cross Section at the LArIAT Experiment, [e-Print:2108.00040](#) accepted by Physical Review D. For Gramellini's PhD thesis main result, she developed and finalized the analysis strategy, performed the data production. Corresponding author.
- K. Duffy, A. P. Furmanski, E. Gramellini, O. Palamara, M. Soderberg & T. Yang, 2021
Neutrino Interaction Measurements with the MicroBooNE and ArgoNeuT Liquid Argon Time Projection Chambers. European Physical Journal Special Topics (EPJ-Special Topics), DOI: [10.1140epjss11734-021-00297-5](#). Contributor invited by the journal, she curated the ν_e portion of the review article.
- S.K. Barman, M.N. Huda, J. Asaadi, E. Gramellini, D. Nygren, 2021
First Principles Studies of the Surface and Opto-Electronic Properties of Ultra-Thin t-Se, DOI: [10.1021/acs.langmuir.1c02935](#), accepted by Langmuir, American Chemistry Society. First publication from Gramellini's LDRD project. As the lead PI for the experimental application, she curated the context for applicability of the simulation in selenium-based novel photosensors.
- A. Abba *et al.*, 2021
The Novel Mechanical Ventilator Milano for the COVID-19 Pandemic, Physics of Fluids 33, 037122. DOI: [10.1063/5.0044445](#). Gramellini was the liaison between the medical team in the front line of the emergency and the physics team developing the ventilator.
- MicroBooNE Collaboration, 2019
Design and Construction of the MicroBooNE Cosmic Ray Tagger System, Journal of Instrumentation, 14 P0400. DOI: [10.1088/1748-0221/14/04/P04004](#). Gramellini was head of installation and testing in situ for this \$1M detector addition to the MicroBooNE experiment.

Most relevant publications with contributions from data analysis and review:

- MicroBooNE Collaboration.
Search for an Excess of Electron Neutrino Interactions in MicroBooNE Using Multiple Final State Topologies (Oct 2021), Phys. Rev. Lett. 128, 241801 (2022)
- MicroBooNE Collaboration. *Search for an anomalous excess of inclusive charged-current ν_e interactions in the MicroBooNE experiment using Wire-Cell reconstruction* (Oct 2021), Phys. Rev. D 105, 112005 (2022)

- MicroBooNE Collaboration, *Calorimetric classification of track-like signatures in liquid argon TPCs using MicroBooNE data* (Aug. 2021). arXiv: 2109.02460 [physics.ins-det]. Accepted to JHEP.
- MicroBooNE Collaboration, *Search for a Higgs portal scalar decaying to electron-positron pairs in the MicroBooNE detector* (June 2021). arXiv: 2106.00568 [hep-ex]. Accepted to Phys. Rev. Lett.
- MicroBooNE Collaboration, *Measurement of the Longitudinal Diffusion of Ionization Electrons in the MicroBooNE Detector* (Apr. 2021). arXiv: 2104.06551 [physics.ins-det]. Accepted to JINST
- MicroBooNE Collaboration, *Measurement of the atmospheric muon rate with the MicroBooNE Liquid Argon TPC*. JINST 16.04 (2021), P04004. doi: 10.1088/1748-0221/16/04/P04004.
- MicroBooNE Collaboration, *Measurement of space charge effects in the MicroBooNE LArTPC using cosmic muons*. JINST 15.12 (2020), P12037. doi: 10.1088/1748-0221/15/12/P12037.
- MicroBooNE Collaboration, *First Measurement of Differential Charged Current Quasielastic-like ν_μ -Argon Scattering Cross Sections with the MicroBooNE Detector*. Phys. Rev. Lett. 125.20 (2020), p. 201803. doi: 10.1103/PhysRevLett.125.201803.
- LArIAT Collaboration, *The Liquid Argon In A Testbeam (LArIAT) Experiment*. JINST 15.04 (2020), P04026. doi: 10.1088/1748-0221/15/04/P04026.
- MicroBooNE Collaboration, *Reconstruction and Measurement of O(100) MeV Energy Electromagnetic Activity from $\pi^0 \rightarrow \gamma\gamma$ Decays in the MicroBooNE LArTPC*. JINST 15.02 (2020), P02007. doi: 10.1088/1748-0221/15/02/P02007.
- MicroBooNE Collaboration, *A method to determine the electric field of liquid argon time projection chambers using a UV laser system and its application in MicroBooNE*. JINST 15.07 (2020), P07010. doi: 10.1088/1748-0221/15/07/P07010.
- LArIAT Collaboration *Calorimetry for low-energy electrons using charge and light in liquid argon*. Phys. Rev. D 101.1 (2020), p. 012010. doi: 10.1103/PhysRevD.101.012010.
- MicroBooNE Collaboration, *Calibration of the charge and energy loss per unit length of the MicroBooNE liquid argon time projection chamber using muons and protons*. JINST 15.03 (2020), P03022. doi: 10.1088/1748-0221/15/03/P03022.
- MicroBooNE Collaboration, *First Measurement of Inclusive Muon Neutrino Charged Current Differential Cross Sections on Argon at E_ν 0.8 GeV with the MicroBooNE Detector*. Phys. Rev. Lett. 123.13 (2019), p. 131801. doi: 10.1103/PhysRevLett.123.131801.
- MicroBooNE Collaboration, *First measurement of ν_μ charged-current π^0 production on argon with the MicroBooNE detector*. Phys. Rev. D 99.9 (2019), p. 091102. doi: 10.1103/PhysRevD.99.091102.
- MicroBooNE Collaboration, *The Pandora multi-algorithm approach to automated pattern recognition of cosmic-ray muon and neutrino events in the MicroBooNE detector*. Eur. Phys. J. C 78.1 (2018), p. 82. doi: 10.1140/epjc/s10052-017-5481-6.
- MicroBooNE Collaboration, *Measurement of cosmic-ray reconstruction efficiencies in the MicroBooNE LArTPC using a small external cosmic-ray counter*. JINST 12.12 (2017), P12030. doi: 10.1088/1748-0221/12/12/P12030.
- MicroBooNE Collaboration, *Determination of muon momentum in the MicroBooNE LArTPC using an improved model of multiple Coulomb scattering*. JINST 12.10 (2017), P10010. doi: 10.1088/1748-0221/12/10/P10010.
- MicroBooNE Collaboration, *Design and Construction of the MicroBooNE Detector*. JINST 12.02 (2017), P02017. doi: 10.1088/1748-0221/12/02/P02017.
- M. Auger et al. *A Novel Cosmic Ray Tagger System for Liquid Argon TPC Neutrino Detectors*. Instruments 1.1 (2017), p. 2. doi: 10.3390/instruments1010002.
- M. Antonello et al. *A Proposal for a Three Detector Short-Baseline Neutrino Oscillation Program in the Fermilab Booster Neutrino Beam* (Mar. 2015). arXiv: 1503.01520 [physics.ins-det].