



HARVARD UNIVERSITY

Department of Physics

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To the DUNE IB Chair: Prof. Bob Wilson,

And to the Co-spokespersons: Prof. Mark Thomson and Prof. Ed Blucher

Dear Sirs,

By this letter, I wish to apply for the participation of Harvard University in the DUNE collaboration, with myself, Roxanne Guenette as the PI and unique faculty member. I have been significantly involved in DUNE (and LBNE previously) for many years now, and with my new position as an assistant professor at Harvard, I wish to continue to make impactful contributions to the collaboration. In the near future, I will participate in the APA consortium and continue my current effort in the planning of the Far Detector installation. Please find below a more detailed description of my previous experience and my future interests in DUNE.

Best Wishes,

Roxanne Guenette



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Previous research and technical experience

I have been involved with the Fermilab Liquid Argon program since 2010 and I have been member of the MicroBooNE and LBNE/DUNE collaborations since then. I was also one of the original analysts to develop the LAr1/SBN proposal. I have been involved directly in the MicroBooNE TPC construction as the L2-manager, leading the wire winding effort. I am a member of the MicroBooNE Technical Board and a member of the Review Committee for the SBDN wire-winding. I therefore have strong expertise in TPC design, construction and testing. I have experience in oscillation, cross-section and detector physics analyses, as well as in software development, both for simulation and event reconstruction.

Regarding LBNE/DUNE, I made significant contributions to the LBNE Long-Baseline Physics group especially from 2010 to 2013, where I was part of the small team performing sensitivity studies to oscillation parameters, in particular using the muon-neutrino disappearance channel. I implemented the first atmospheric neutrino simulation tools for DUNE. I have been the Deputy Convener for the Far Detector installation since 2015. I was the Young-LBNE representative in 2012-2013.

Harvard Members

- 1 Faculty (assistant professor): Roxanne Guenette (PI, IB representative)
- 2 Postdocs: Corey Adams, Justo Martin-Albo (from October 2017)
- 2 graduate students (prospective), 2 undergraduate students (prospective)

Scientific and technical interests in DUNE

I plan to join the APA consortium and play a significant role in the development of the APA testing, QA/QC procedures development and application. I will also continue my current work on the development of the installation procedures for the single-phase far detector. I am interested in the oscillation physics as well as search for exotic physics in the DUNE experiment.

Resources and potential funding

I will continue to dedicate 30% of my research time to DUNE and I expect a total of 1 postdoc FTE and 1 graduate student FTE in the next years, depending on funding outcome. I will use University start-up funds for the first couple of years and will apply for different funding opportunities such as DOE grants.