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# LAr purification for LBNF-DUNE: Brazil in-kind contribution

*Thursday 31 October 2024 10:30 (30 minutes)*

Liquified noble gases is frequently the choice of target for neutrino and dark matter experiments which requires an extremely high grade of purity of the liquids (in particular, in terms of oxygen contamination (< 100 ppt). Ultra-pure Liquid Argon (LAr) is the chosen target for the Long Baseline Neutrino Facility (LBNF) –Deep Underground Neutrino Experiment (DUNE) and related experiments. Brazil in-Kind contribution includes R&D, testing, construction and commissioning (including Facility Technical description, Facility lay-out, facility assembly process description, Master Plan encompass detailing, implementation and commissioning phases and commercial data) to complete engineering, design, manufacturing, testing, shipping and delivery of the Gaseous Argon (GAr) purification, LAr purification and Regeneration Systems for Detectors #1 and 2#. In this talk, we will describe the conceptual Project Design of these systems and the proposals for innovative methods of LA purification, including capturing of nitrogen, which is a desirable additional feature to increase the control of the LAr purity in case of unexpected leaks and to allow the advanced use of the LAr scintillation light beyond the initial requirements of LBNF-DUNE. FAPESP Project # 2024/07128-7,

**Author:** GIGLIO PAGLIUSO, Pascoal Jose (Unicamp - Brazil)

**Presenter:** GIGLIO PAGLIUSO, Pascoal Jose (Unicamp - Brazil)

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