

GTT membrane technology to equip a major international scientific project, the Deep Underground Neutrino Experiment

Paris – October 6th, 2022. GTT announces that it has been awarded a contract by the Lawrence Berkeley National Laboratory to support research work for the Deep Underground Neutrino Experiment¹ (“DUNE”) under the auspices of the U.S. Department of Energy’s Fermi National Laboratory (“Fermilab”). Under this contract, GTT will provide engineering and construction studies for the adaptation of its membrane technology inside a cryostat² designed by the Lawrence Berkeley National Laboratory and its partners.

DUNE is a major international experiment that aims to increase the understanding of neutrinos. The project takes advantage of the neutrinos produced by the Long-Baseline Neutrino Facility (LBNF) at Fermilab, which are subsequently screened in the particle detectors filled with liquid argon. Liquid argon used in this experimental context has to be maintained at an extremely stable temperature of -186°C, in an environment that secures, through perfect tightness, the purity of materials and a high level of thermal isolation.

This new contract follows [the contract signed by GTT in 2018](#) with the CERN³, on behalf of the LBNF/DUNE⁴-US Project. In the framework of this previous collaboration, GTT contributed the final design of the far detector cryostats. The new contract will focus on the inner vessel design installed inside a warm support structure, for the liquid argon near detector.

Philippe Berterottière, Chairman and CEO of GTT, declared: *“This new contract showcases the reliability and flexibility of the technologies developed by the GTT group. We are proud to provide technologies that can meet the technical and scientific requirements of the DUNE project, and to work with the Lawrence Berkeley National Laboratory, one of the most prestigious National Laboratories in the United States.”*

Fabrice Matchard, Lead Engineer for the LBNF/DUNE-US Near Detector Subproject and Head of the Lawrence Berkeley National Laboratory Mechanical Engineering department stated: *“Our collaboration with GTT will provide the membrane technology for the liquid argon detector. This new cryostat design incorporates features such as the ability to travel on rails and a low-density composite wall to probe neutrinos with the level of precision required by the DUNE experiment.”*

¹ More information about the DUNE project: <https://www.dunescience.org/>

² A cryostat is a device by which temperature can be maintained at a very low level. For more information about the cryostats used in the framework of the DUNE project: <https://lbnf-dune.fnal.gov/how-it-works/cryostats-and-cryogenics/>

³ European Council for Nuclear Research.

⁴ LBNF-DUNE (Long-Baseline Neutrino Facility - Deep Underground Neutrino Experiment): Science project to increase the understanding of neutrinos. For more information: <https://lbnf-dune.fnal.gov/>



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Press release

About GTT

GTT is a technological expert in containment systems with cryogenic membranes used to transport and store liquefied gases. For over 50 years, GTT has been designing and providing cutting-edge technologies for a better energy performance, which combine operational efficiency and safety, to equip LNG carriers, floating terminals, land storage, and multi-gas carriers. GTT also develops systems dedicated to the use of LNG as fuel, as well as a full range of services, including digital services in the field of Smart Shipping. The Group is also active in hydrogen through its subsidiary Elogen, which designs and assembles electrolyzers notably for the production of green hydrogen.

GTT is listed on Euronext Paris, Compartment A (ISIN FR0011726835 Euronext Paris: GTT) and is notably included in SBF 120, Stoxx Europe 600 and MSCI Small Cap indices.

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