

Liquid Argon technology for particle physics. New perspectives for Brazilian experimental physics.

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Two of the most intriguing fields in the actual particle and astroparticle physics scenario are the nature and properties of neutrinos and the direct search for Dark Matter. Some of the next generation experiments in these two fields will use the very powerful technique based on the use of Time Projection Chambers with liquefied noble gases as active media. A notable example is the Deep Underground Neutrino Experiment (DUNE) project that is planning to realize a World class experiment aimed to address some of the open questions in neutrino physics. The Collaboration will build a gigantic TPC with an active mass of about 40 kton of LAr. I will review the most significant aspects of the experimental technique and the most relevant experiments that adopts it or that are planning to do it in the near future. Brazilian experimental physics can have an active role in the development of some aspects of this technology and in the realization of future experiments. The program being carried on at UNICAMP will be briefly presented.