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## Experimental study of breakdown electric fields in liquid argon

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The last decade has seen an increase in the importance and application of liquified noble gases as detecting medium, both in the dark matter search and accelerator-based neutrino experiments. Especially in the latter field, Liquid Argon Time Projection Chambers (LArTPCs) are promising candidates for future short and long baseline oscillation experiments.

Hence, characterization of both LArTPCs and liquid argon properties results crucial for the successful realization of multi-kiloton scale detectors.

In this talk I report on systematic studies of breakdown electric fields in liquid argon as a function of argon purity, cathode - anode distance and electrode size performed at Fermilab. The results exhibit a geometric dependence of the electric field strength at breakdown. This is the first time that such a dependence has been shown for liquid argon.

**Primary author:** Dr ACCIARRI, Roberto (FNAL)

**Presenter:** Dr ACCIARRI, Roberto (FNAL)

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