

# Cosmogenic rejection in LEGEND200 based on the LAr Veto

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## Abstract

The LEGEND-200 experiment at LNGS searches for  $0\nu2\beta$  decays in  $^{76}\text{Ge}$ , using Germanium detectors operating inside a cryogenic liquid argon (LAr) shield.

The expected sensitivity to  $0\nu2\beta$  depends crucially on the experimental background. To suppress the cosmogenic background, the LAr veto system can be employed.

We present an effective suppression strategy of cosmogenics, leveraging Machine Learning to extract patterns in the data. The topology of energy depositions in LAr is used to develop a smart identification, able to reject low-energy, high-activity noise, like  $^{39}\text{Ar}$   $\beta$  decays. The result is an automated approach to synthesize a smart trigger system.