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Search of reconstructed Michel-electrons in DUNE

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The Deep Underground Neutrino Experiment (DUNE) is a long baseline experiment that wants to answer questions like: the preponderance of matter over antimatter, the dynamics of the supernova neutrino bursts and whether protons decay, using a neutrino beam.
The experiment exploits Liquind ArgonTime Projection Chamber (LArTPC) technology.
DUNE consists of 4 modules of 17 kton located 1300 km away in an underground facility in South Dakota.
DUNE will also be able to look at neutrinos from other sources: supernovae and atmospheric, which have a different energy range.
My work focuses on improving the performance of the detector for neutrinos from atmospheric sources. In particular, I'm studying the ability to distinguish the charge of the neutrino that can increase the sensitivity in the mass hierarchy measurement.
In order to distinguish the charge of neutrinos, we take advantage of charge detection of muon events by going to observe the electrons that are products of the muon decay (called Michel-electrons)
My final goal is to optimise the Michel-electron tagging efficiency using reconstruction information of atmospheric neutrinos.

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