



Contribution ID: 15

Type: **not specified**

DAPHNE in DUNE

Friday 29 July 2022 09:30 (30 minutes)

The main goal of this talk is to give an overview of the so-called DAPHNE(Detector electronics for Acquiring PHotons from NEutrinos) system, a component of the Photon Detection System (PDS) in DUNE.

In this talk, I will give a brief introduction to the Photon Detection System (PDS) of DUNE, far detectors in horizontal drift technology. Nevertheless, I will include an overview of the X-ARAPUCA, cold electronics, and the interface with DAPHNE board.

As DAPHNE board has been largely developed by Colombian institutions, like Universidad EIA, Universidad Antonio Narino, Universidad de Antioquia. A more in depth focus will be given into the board architecture, development and implementation; in order to understand how it works, and how it matches system requirements in DUNE.

Keywords: Photon detection, single phase, digital signal processing, FPGA, Neutrinos, HDL, Migen, Python.

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Session Classification: Neutrinos