Operation of a TPC using the SAMPA chip integrated in the SRS

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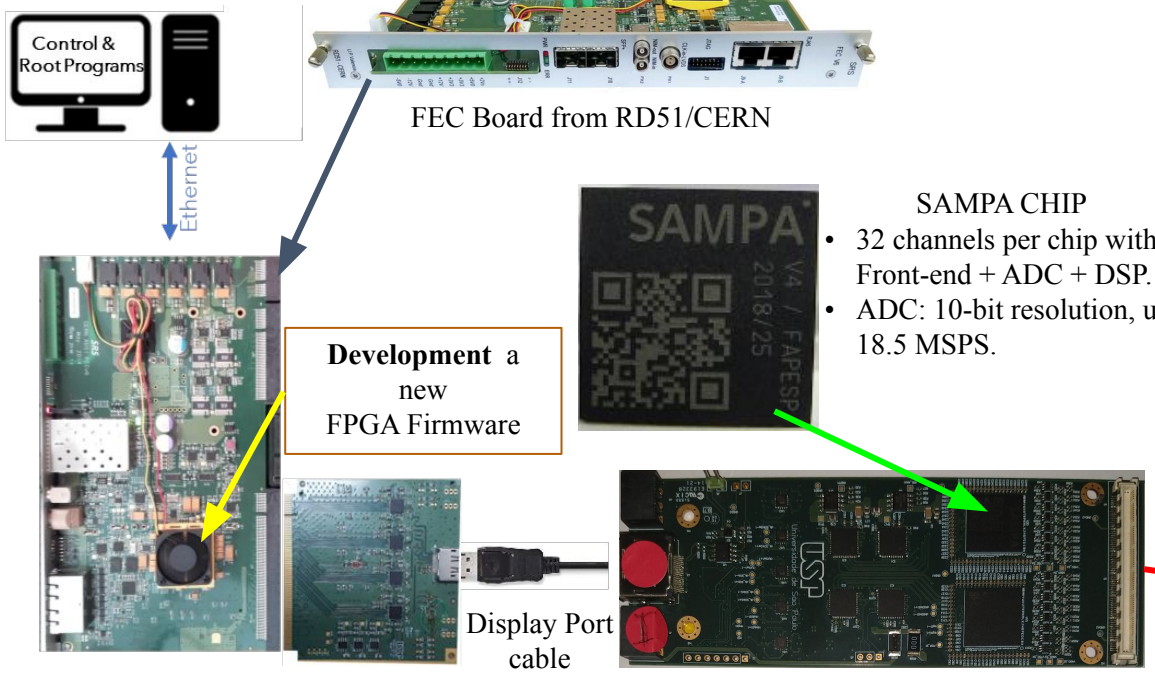
This work is divided into two parts:

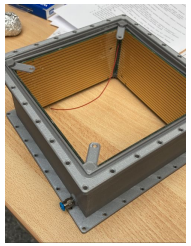
- Developments in terms of hardware and software to integrate the SAMPA chip in the SRS
- Construction of a triple-GEM based TPC to test the new readout system by building a setup to detect cosmic rays.

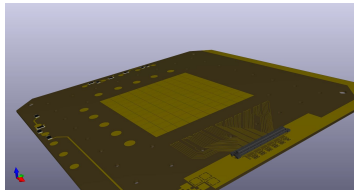
Electronics overview

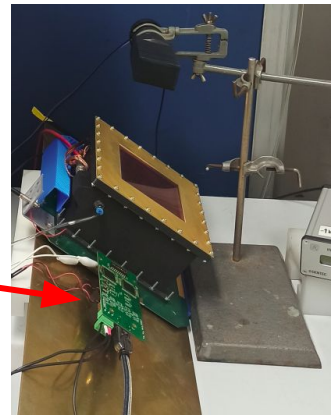


Time Projection Chamber prototype

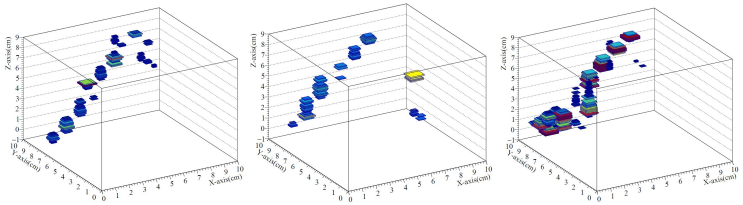
- Standard triple-GEM
- Operating with Ar/CO_2(70/30)
- 10 cm x 10 cm sensitive area
- 8 cm drift volume
- 120 pad readout (independently-read)
- SAMPA integration in SRS (RD51/CERN)
- Telescope setup (double coincidence trigger with two photomultipliers)







Signal processing and event selection for the reconstruction of cosmic rays tracks



15th Pisa Meeting on Advanced Detectors, 22nd to 28th May 2022, La Biodola (Italy)

FAPESP FUNDAÇÃO DE AMPARO À PESQUISA DO ESTADO DE SÃO PAULO

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GAČR GRANTOVÁ AGENTURA ČESKÉ REPUBLIKY

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