

# YETS activities for SND@LHC experiment

Installation of MiniDT detector



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Scattering and Neutrino Detector  
at the LHC

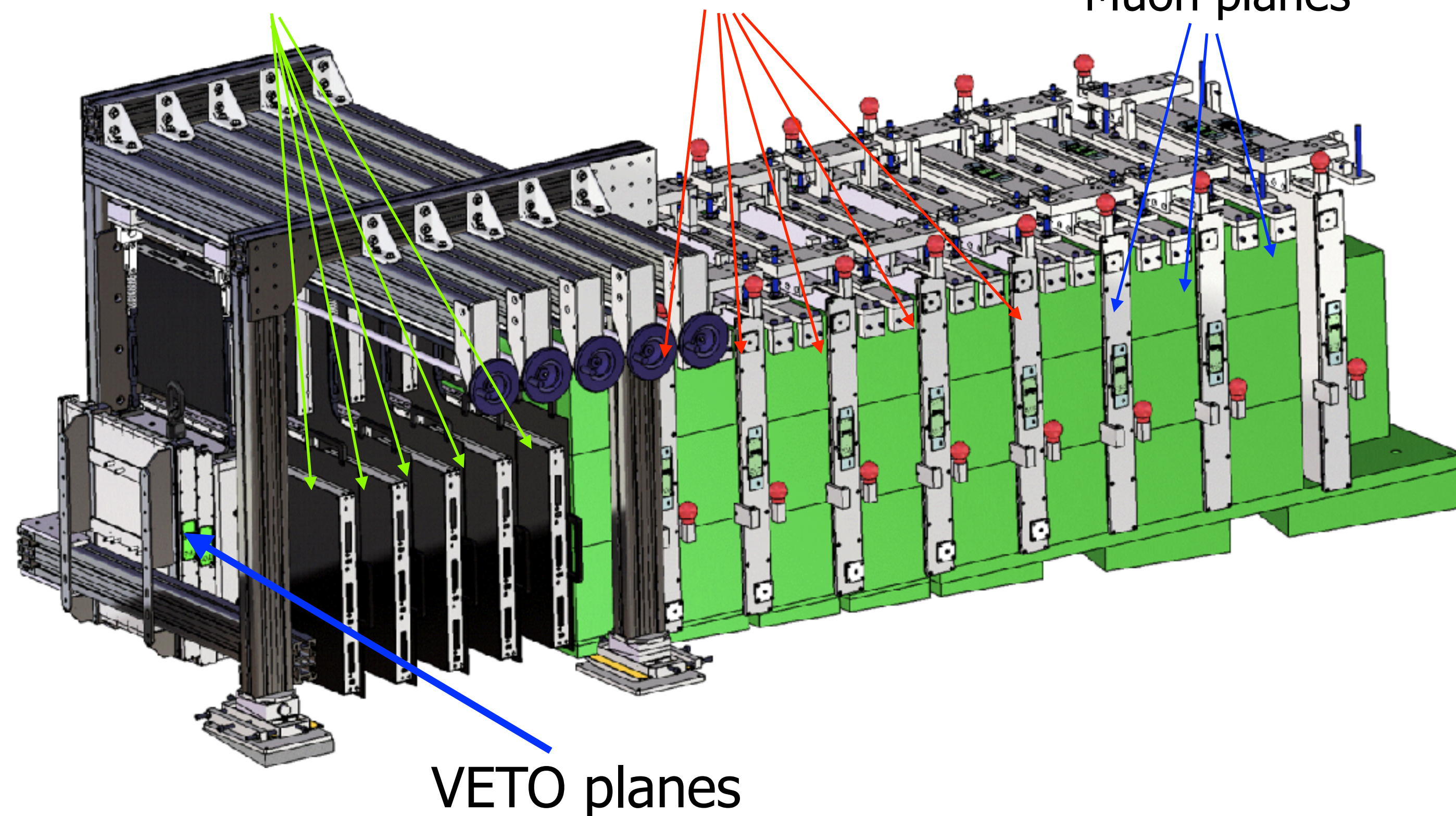
# SND@LHC experiment - Background

- SND@LHC experiment get neutrinos from pp collisions in ATLAS. One of the main problem of id the neutrinos is the tagging of muons coming from upstream. Muons are track with the SciFi tracking stations and later confirmed with 3 Scintillating planes called Downstream.
- The current technology of SciFi allows a 150um resolution while the DS provide a 1cm thickness. Therefore improving the track resolution is crucial for analysis of vertex location and vetoing muon traces with higher efficiency.

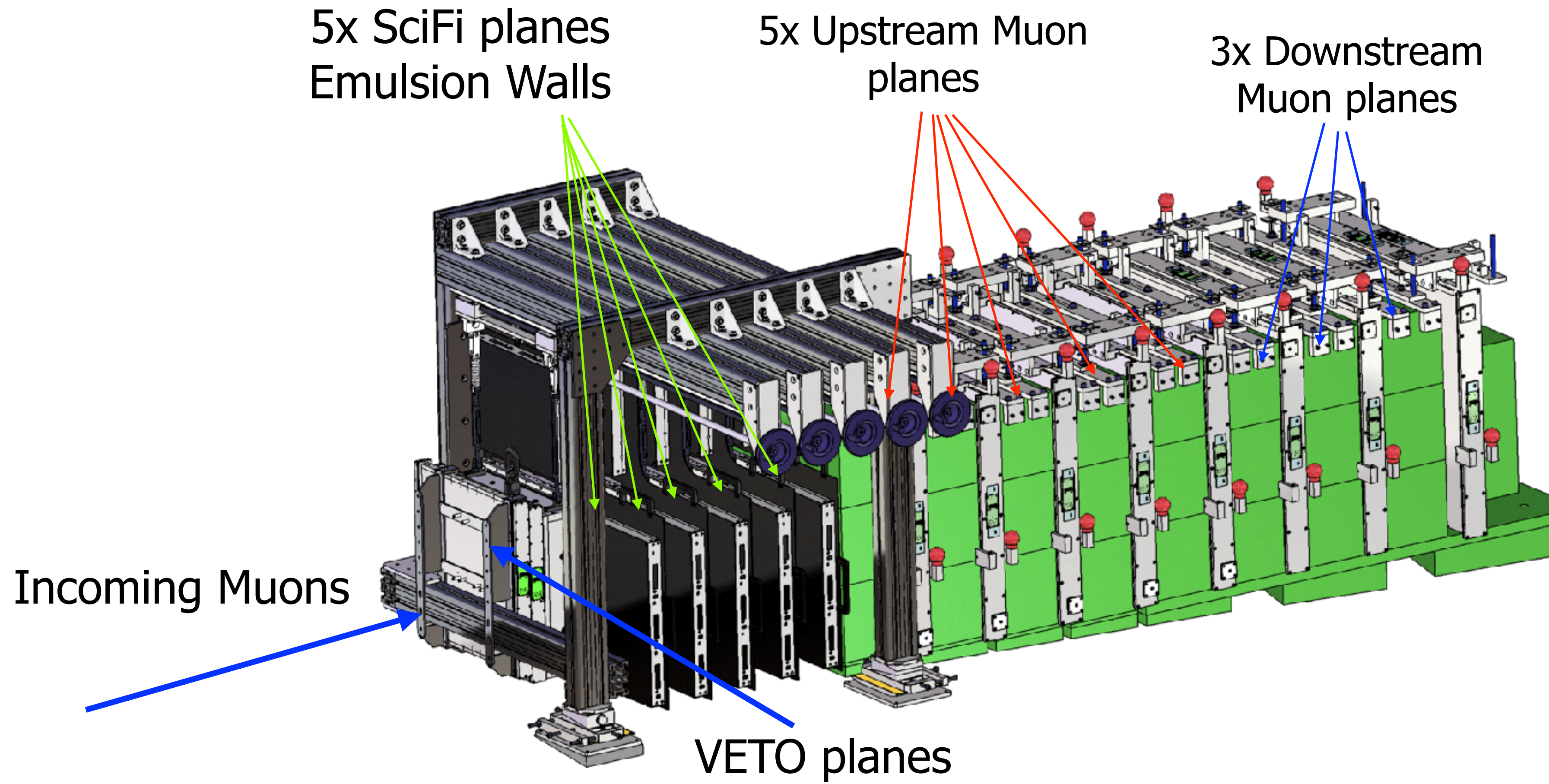
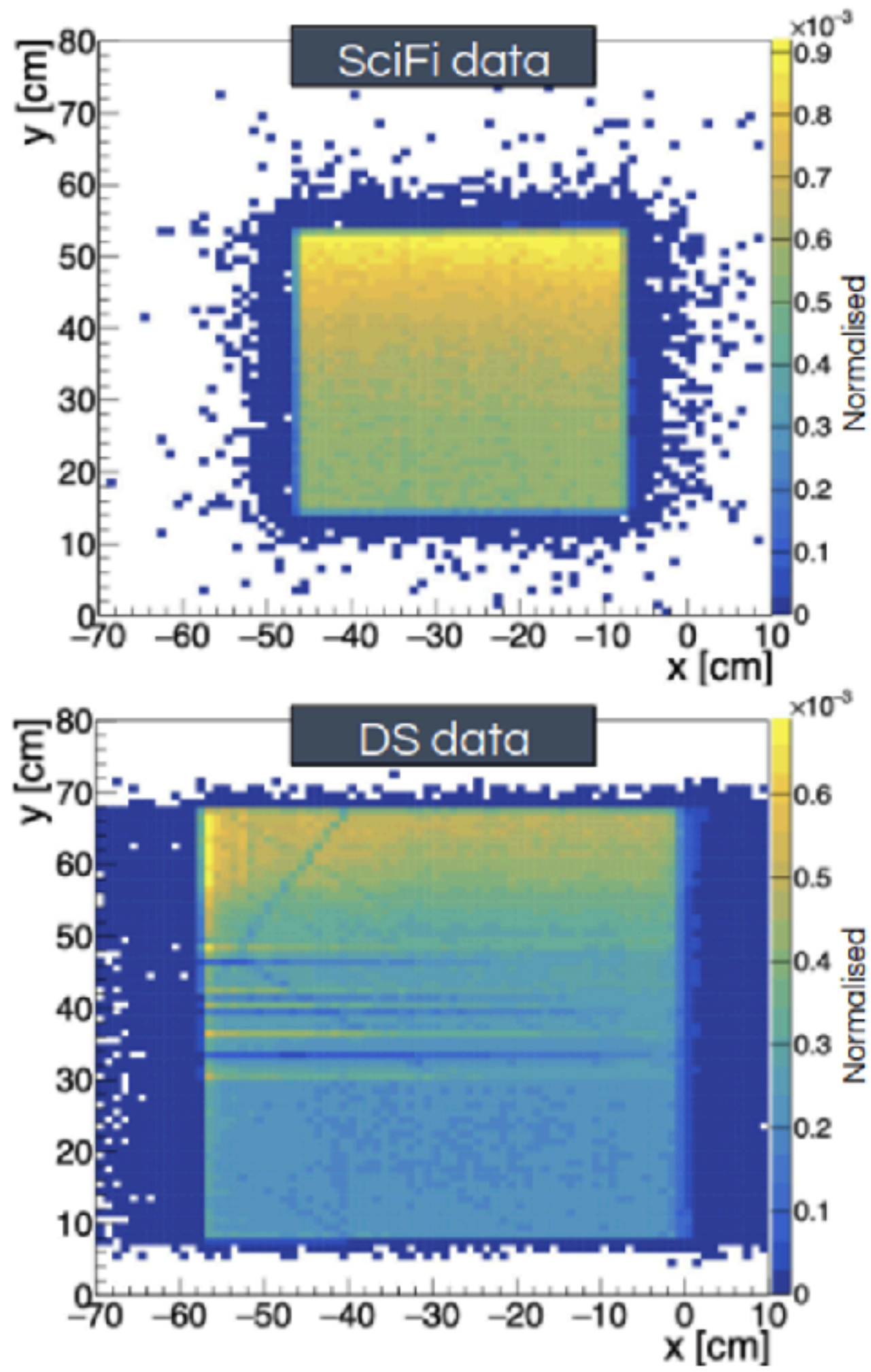
5x SciFi planes  
Emulsion Walls

5x Upstream Muon  
planes

3x Downstream  
Muon planes

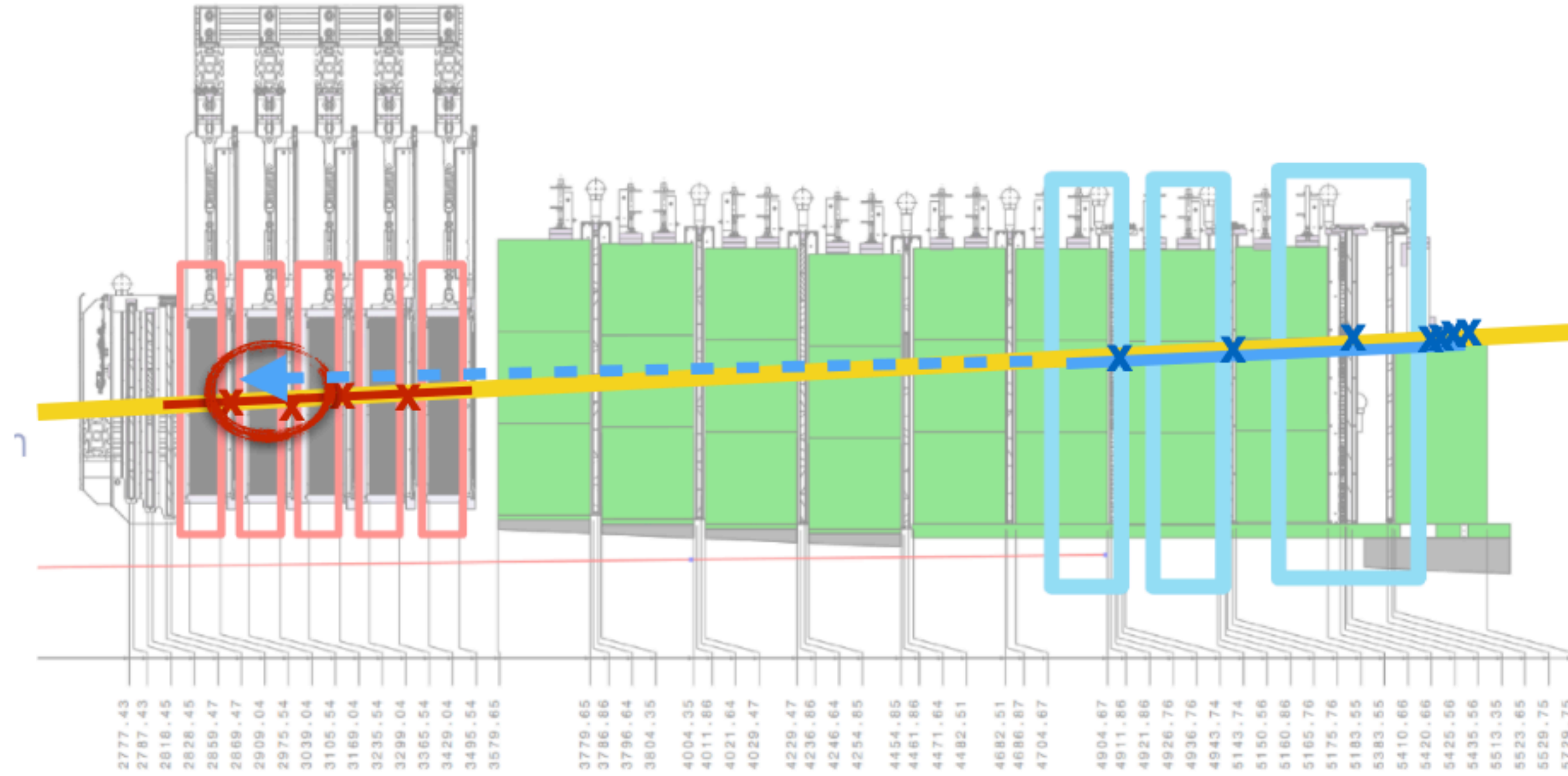


# SND@LHC experiment - Muon flux

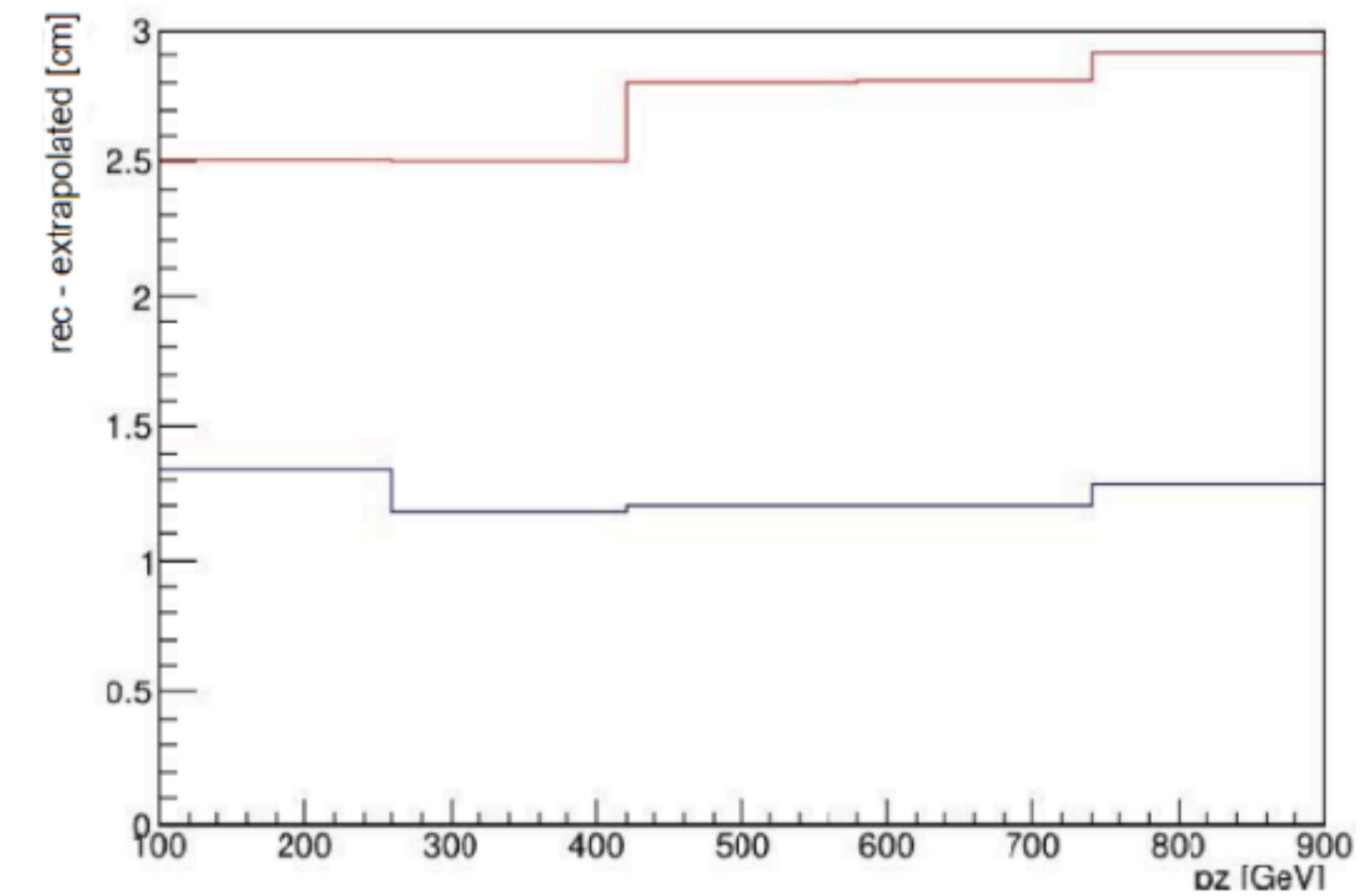
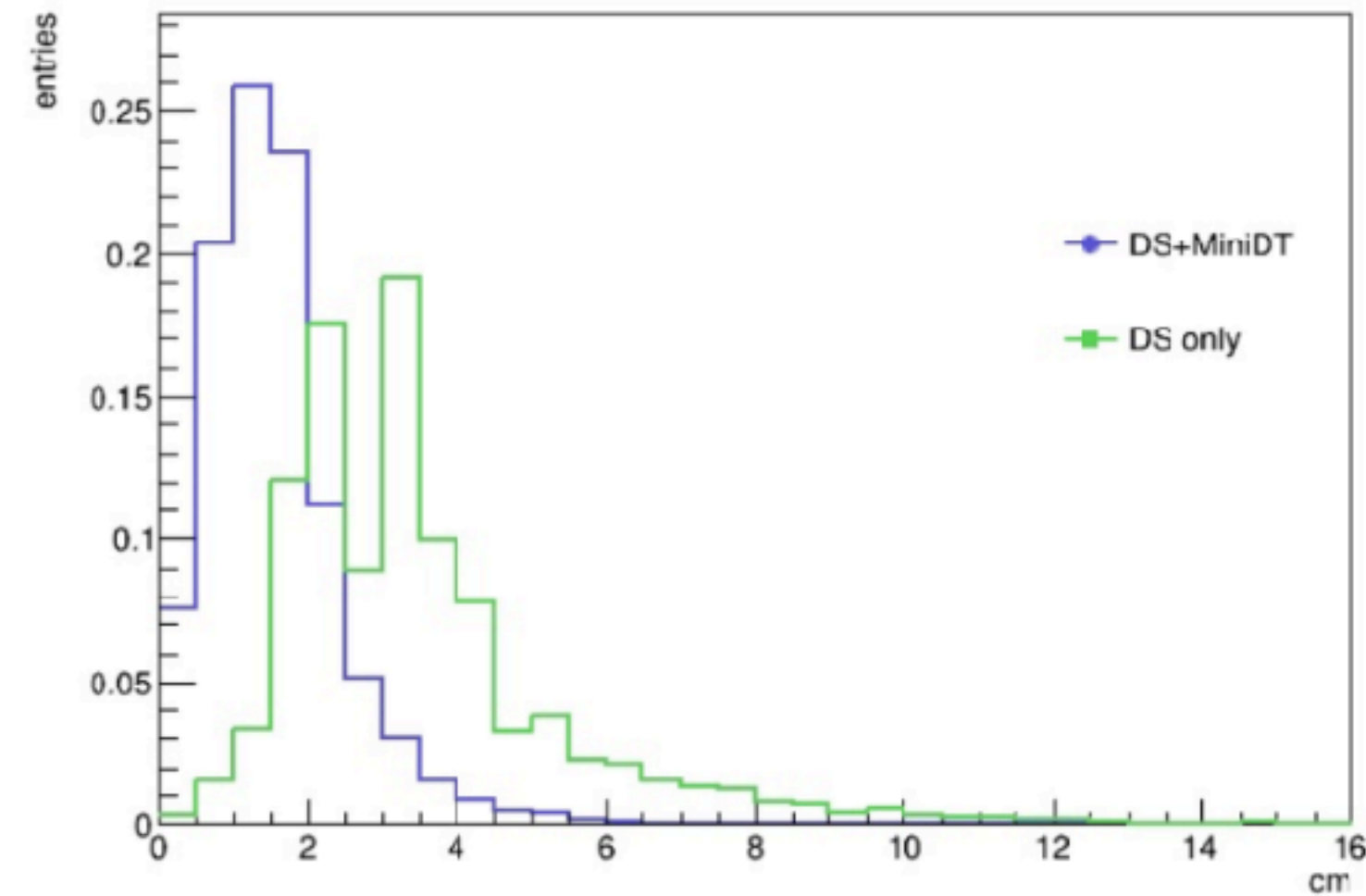
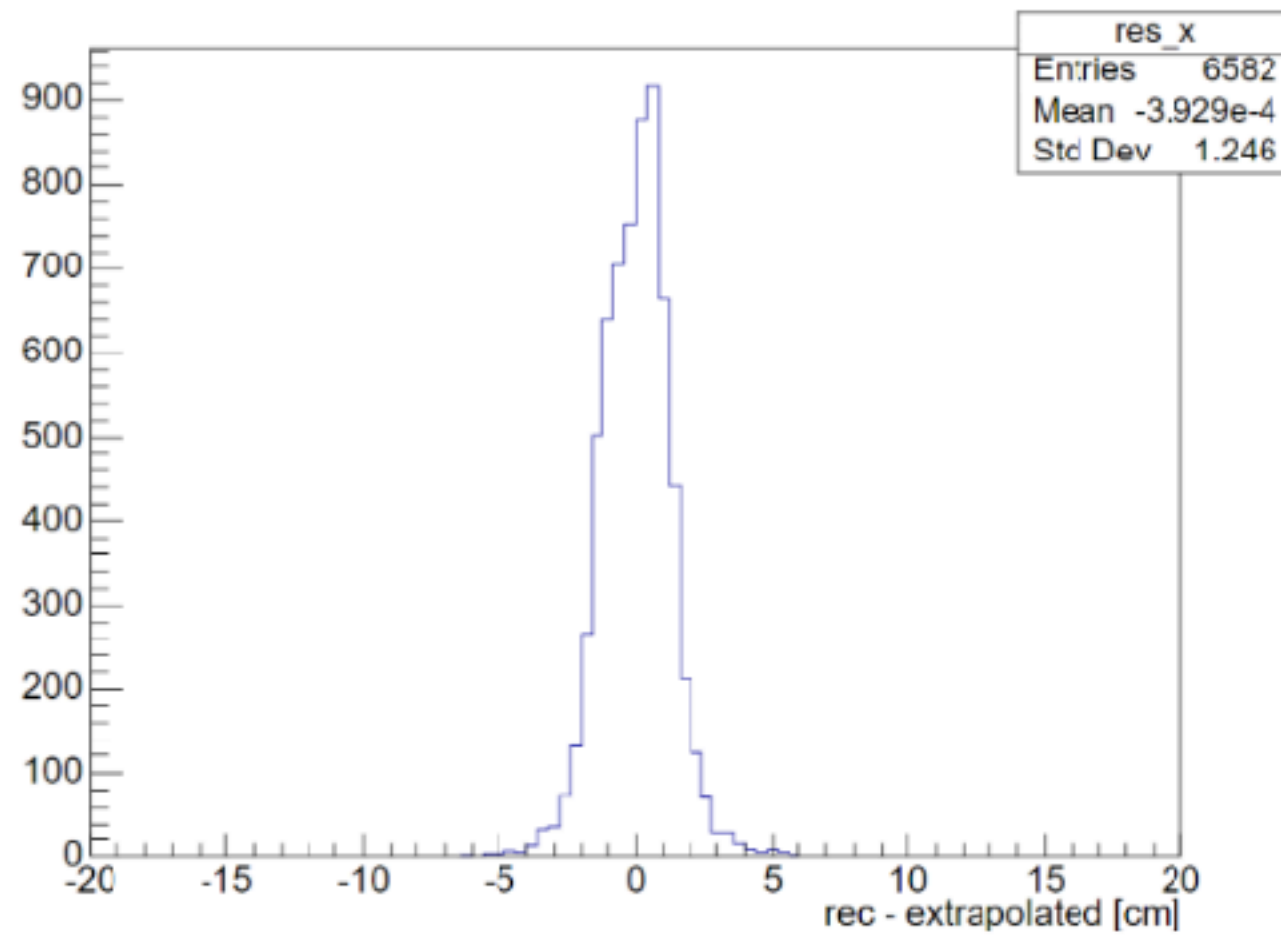


# MiniDT to improve tracking

- Simulation studies shows a great improvement adding two planes of Mini Drift Tubes at the end of the detector.
- For this, SND@LHC wants to add two plane of MiniDT and exchange it with one DS plane (scheme on next slide)

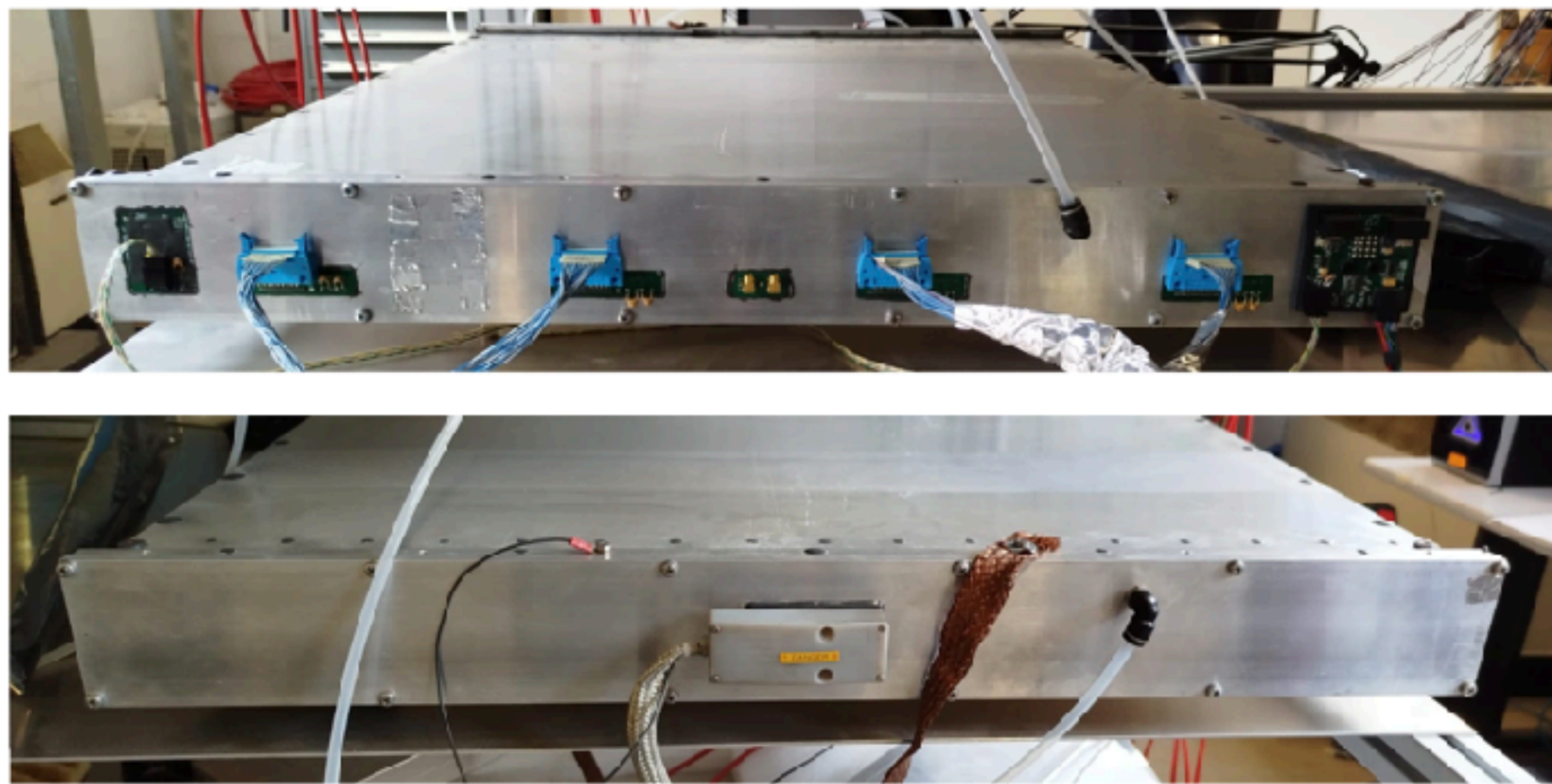


DS+miniDTs: x residual

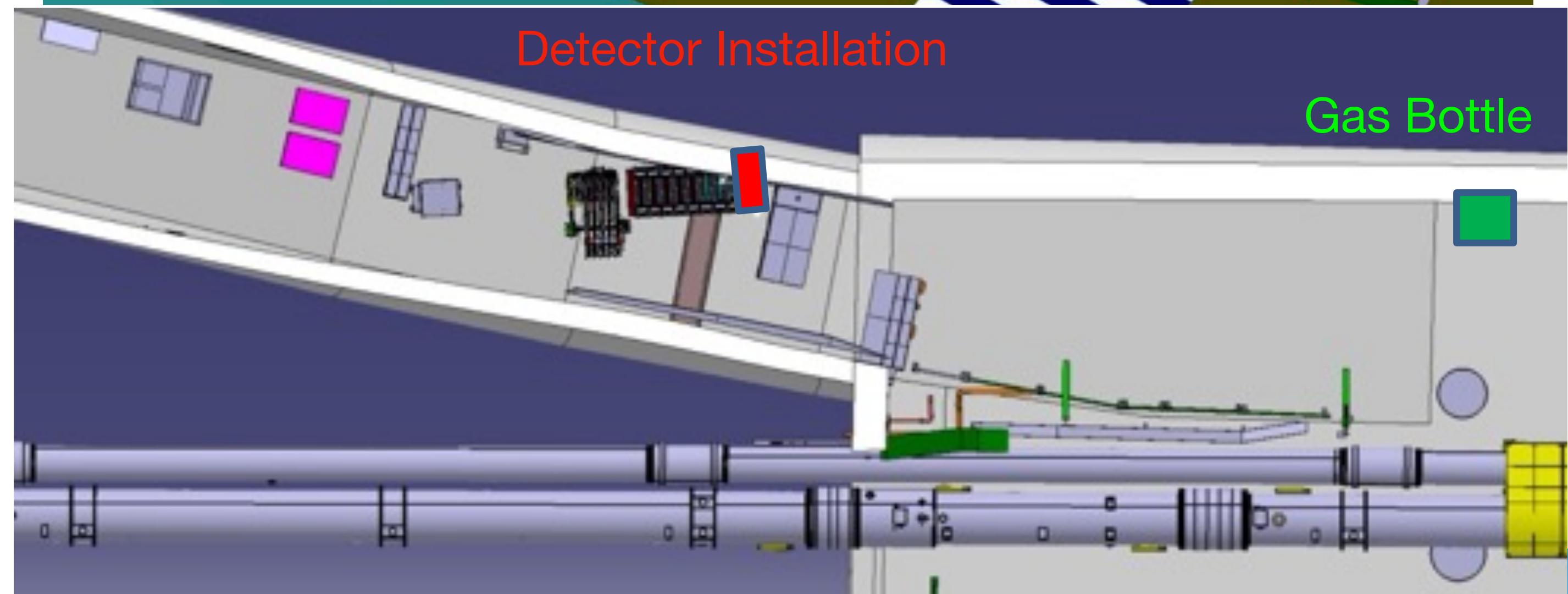
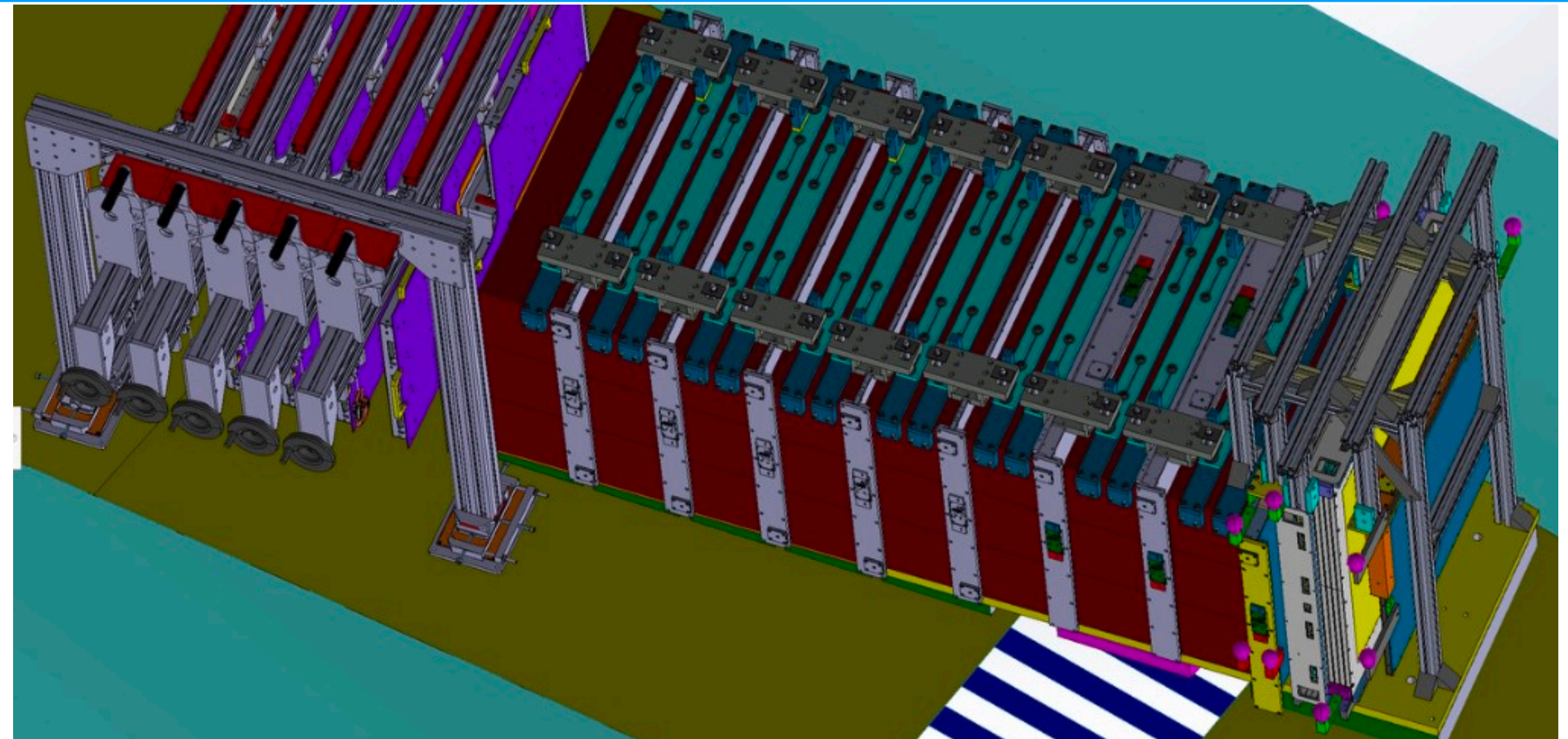


# MiniDT - Installation

- Detectors were tested P5@CERN in a test bench, ELX can be integrated to SND@LHC DAQ, minimal cabling needs to be done. No extra power required.
- 1 pre-mixed Gas bottle (85:15 Ar:Co<sub>2</sub>) needs to be installed inside the Ti18 area, couple of meters far away from the detector location. There is green light from Safety.
  - No need of extra frame to hold the gas bottle. It will be attached to the wall with current screws and attached to the gas chariot.



MiniDT plane, front and back panel



# Work Plan

- **Need 1 Visit in Feb** for finals checks of installation.
- Possible date/week: **Installation on Week 10**. Need 2 days for installation and checks.
- **Remove last Iron block**, add new **Mechanical frame** that will hold MiniDT and last DS detector.
- Set in MiniDT and route cabling and gas pipes. Switch LV, Gas and HV.

