Emulsion Data Analysis for SND@LHC

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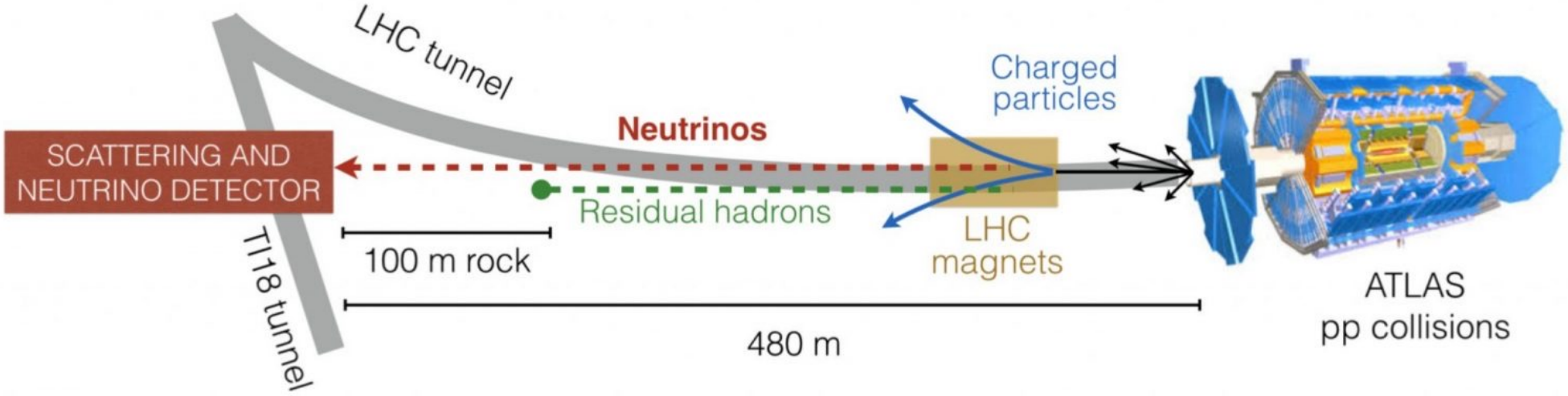
Scattering and Neutrino Detector (SND@LHC)

- Aims to detect and study collider neutrinos along with FASERν
- Optimized to identify the three neutrino flavors and feebly interacting particles
- 480m downstream from the ATLAS interaction point, slightly off-axis



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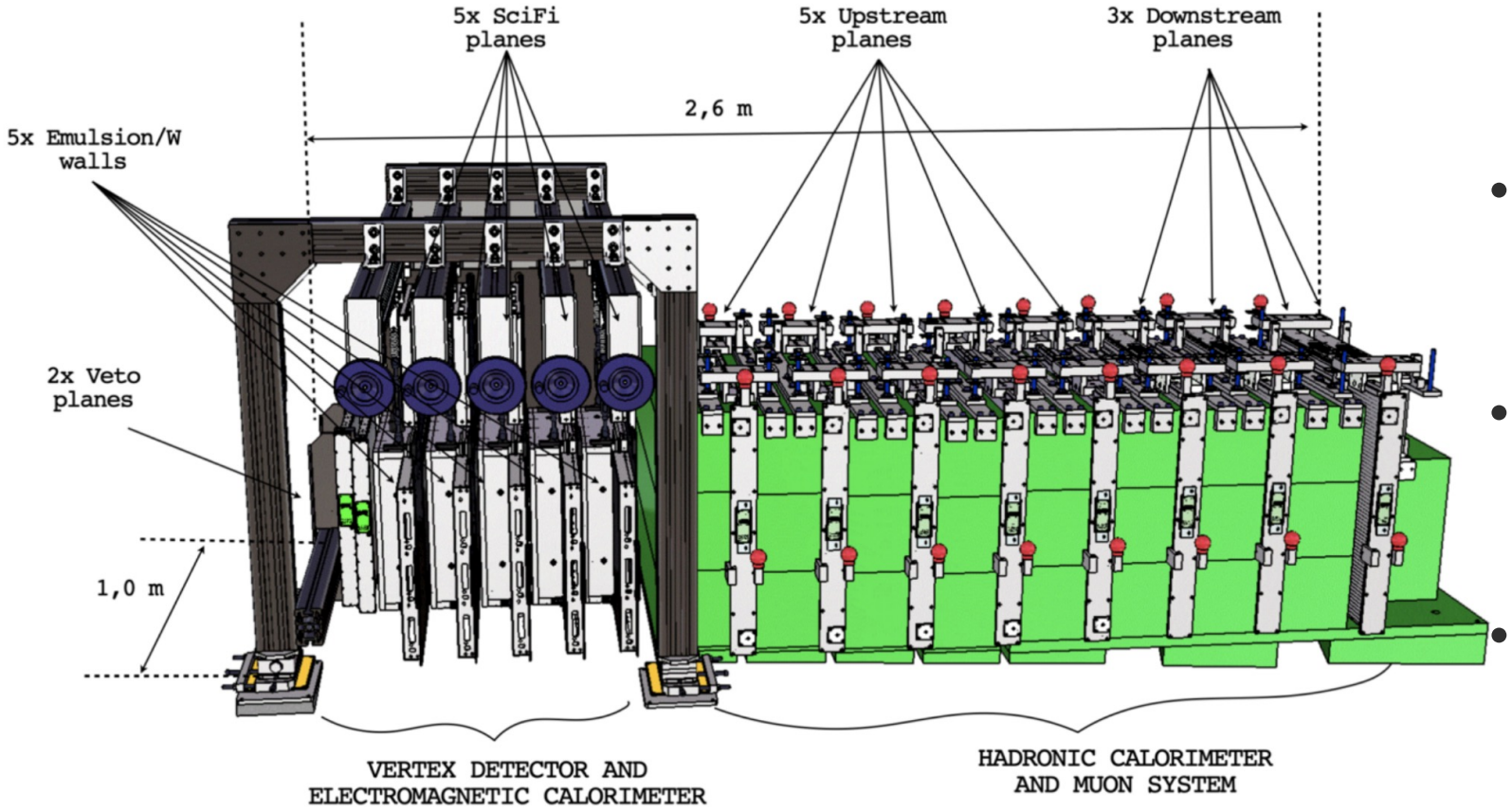


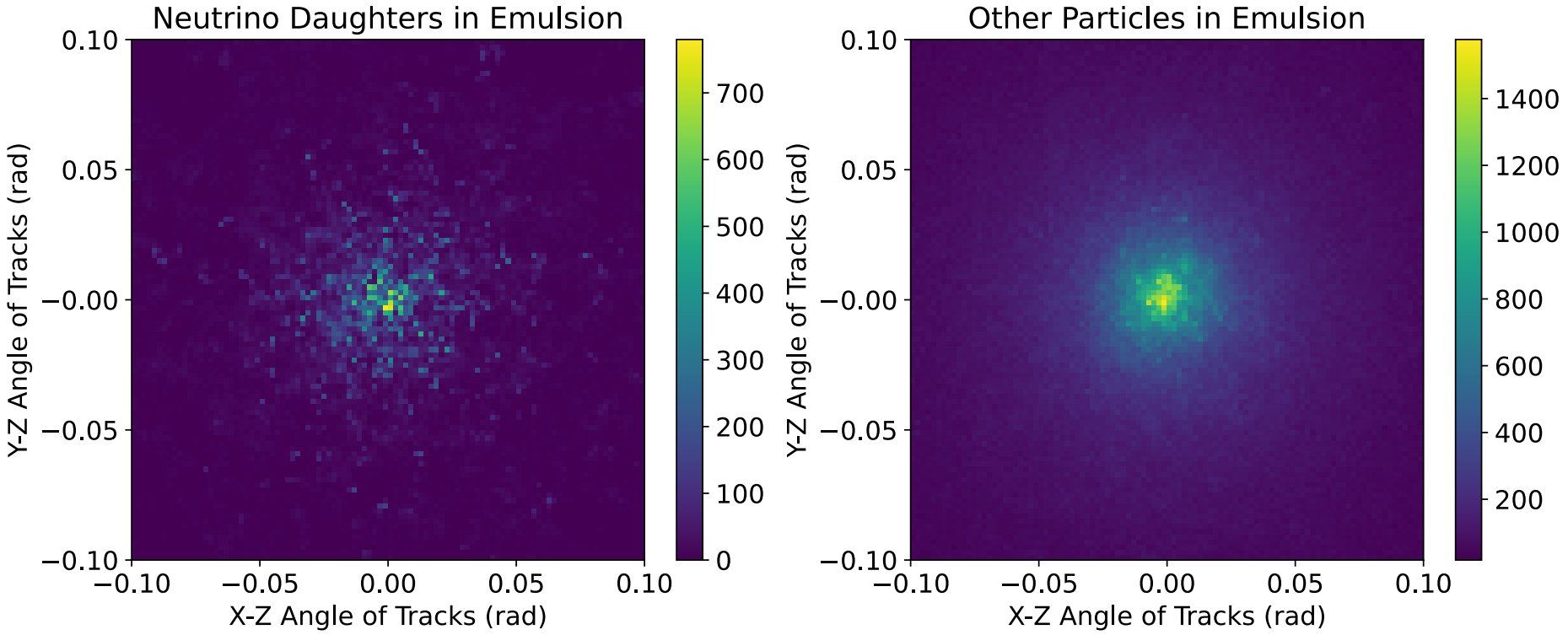
- Each target wall is made up of 4 emulsion cloud chamber (ECC) bricks
- Each ECC brick contains emulsion films alternated with passive tungsten layers
- Emulsion films are replaced regularly, then scanned using optical microscopes
- Data can then be analyzed for neutrino events

Project Goals

- Compare Monte Carlo datasets to reconstructed emulsion data from the detector
- Work on improving reconstruction purity by performing a sub-selection of base tracks (tracks within a single emulsion film)
- Help with emulsion film replacement and processing

Current Progress

- Learned to use optical microscopes to scan emulsion films
- Began analysis on angular distribution of base tracks in emulsion layers for MC datasets of muon and neutrino events
- Starting to perform angular cuts on MC data to improve purity of neutrino events



Weekend Travel!