XVI Neutrino Telescopes Workshop
Palazzo Franchetti - Venice, 2 - 6 March 2015

Poster Session – Submission of Abstract

Submitter: Benjamin Büttner, Hamburg University, benjamin.buettner@desy.de
Author: Benjamin Büttner for the OPERA-Hamburg group

Title of the Poster: The Muon-Tracking-System of the OPERA Experiment

Abstract Text:

The main goal of the OPERA experiment is to detect the oscillation of ν_μ into ν_τ. The appearance of a ν_τ is identified by the typical decay signature of the short living τ which is created in an CC-interaction of the ν_τ in the detector. If ν_μ interact in the detector they can produce charmed particles which can mimic the decay signature of the τ. In order to suppress this background it is crucial to identify the charge of the μ. Therefore a spectrometer with good spatial resolution and robust track reconstruction algorithms is needed. The OPERA detector has a tracking system consisting of drift tubes called Precision Tracker (PT). This poster presents the PT and a robust charge reconstruction algorithm. Also further developments to remove ambiguities in the track reconstruction are shown.

Summary:

The OPERA experiment measures the oscillation of ν_μ into ν_τ. To suppress background processes the correct charge measurement of the particles is important. Therefore a Muon-Tracking-System called Precision Tracker (PT) is used as a part of the spectrometer. This poster presents the PT and a robust charge reconstruction algorithm as well as techniques to remove ambiguities in the track reconstruction.

Tag / key word / topic:

OPERA, Neutrino Oscillation, Tracking-System, Charge Reconstruction, Drift Tube, Spectrometer