

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

## Poster Session – Submission of Abstract

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*Title of the Poster*

Appearance of new physics phenomena in the OPERA neutrino experiment

*Abstract*

Since its discovery in 1998, neutrino oscillations are among the most established phenomena that occur beyond the standard model. So far, oscillations also also our more effective tool for the investigation of the lepton sector.

In this scenario, OPERA is the only experiment which is sensitive to all the three neutrino flavour in the 10 GeV region. Up to now, OPERA has discovered 4  $\nu_\tau$  interaction candidates, with an overall significance of  $4.2\sigma$ .

Recently, a new interesting event has been discovered with two secondary vertices. Preliminary analysis will be illustrated and discussed.

*Summary*

Events with two secondary vertices can be the signature of very relevant physics processes: CC  $\nu_\tau$  interaction with charmed quark production or NC  $\nu_\mu$  scattering on a gluon with  $c\bar{c}$  pair production. A dedicated analysis is expected to discriminate between the two signatures and also to evaluate the background for both signal hypotheses.

*Keywords* neutrino oscillations, neutrino appearance, tau neutrinos.