

# XVI Neutrino Telescopes Workshop

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### Poster Session - Submission of Abstract

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**Title of the poster:** Neutrino physics with the SHIP experiment

#### **Abstract text:**

Despite the Standard Model (SM) has been strongly confirmed by the Higgs discovery, several experimental facts are still not explained. The SHIP experiment (Search for Hidden Particles), a beam dump experiment at CERN, aims at the observation of long lived particles very weakly coupled with ordinary matter. These particles of the GeV mass scale foreseen in many extensions of the SM might come from the decay of charmed hadrons produced in the collision of a 400-GeV proton beam on a target.

High rates of all the three active neutrinos are also expected. For the first time the properties and the cross section of the  $\nu_{\tau}$  will be studied thanks to a detector based on nuclear emulsions, with the micrometric resolution needed to identify the tau lepton produced in neutrino interactions. Measuring the charge of the tau daughters, will enable the first observation of the  $\bar{\nu}_{\tau}$  and the study of its cross section.

#### **Summary:**

SHIP experiment at CERN, search for Heavy Neutral Leptons, studies of the properties and the cross section of  $\nu_{\tau}$ , first observation of  $\bar{\nu}_{\tau}$  and study of relative properties