Contribution ID: **39** Type: **Oral**

The European Spallation Source Neutrino Super Beam

Tuesday, September 10, 2013 4:20 PM (20 minutes)

The European Spallation Source (ESS) linac with 5 MW proton-power has the potential to become the proton driver of - in addition to the world's most intense pulsed spallation neutron source - the world's most intense neutrino beam. The physics performance of that neutrino Super Beam in conjunction with a megaton Water Cherenkov neutrino detector installed 1000 m down in a mine at a distance of 500 km from ESS will be described. In particular, the superior potential of such a neutrino experiment to discover the lepton CP violation in order to explain the matter-antimatter asymmetry in Universe and also the neutrino mass hierarchy will be discussed. In addition, the choice of such detector will extent the physics program to proton-decay, atmospheric neutrinos and astrophysics searches. The ESS proton linac, the target station optimization and the physics potential will be discussed.

Primary author: DRACOS, Marcos (University of Strasbourg)

Presenter: DRACOS, Marcos (University of Strasbourg)

Session Classification: Neutrino Oscillations/ Neutrino Beams II