



Contribution ID : 227

Type : Oral talk

Calculation of the sensitivity of the CP-violation phase measurement in the lepton sector in the P2O experiment

Wednesday, 23 October 2024 10:25 (15)

In the P2O (Protvino-to-ORCA) experiment, it is planned to direct a neutrino beam from the U-70 proton accelerator (Protvino, Russia) to the Mediterranean Sea to detect neutrinos with the deep-sea ORCA detector created near the French coast. The purpose of these experiments is to determine the neutrino mass hierarchy and search for CP-violation in the lepton sector. Various options of the construction of the corresponding neutrino channel at the U-70 accelerator were considered earlier. In this report different types of uncertainties in the experiment and the contribution of each of them to the CP-violation phase measurement error are studied. This will help to understand their importance and make possible in future to develop the optimal design of the planned long-baseline experiments (the type and characteristics of the beam, detectors, necessary integral luminosity). We also calculated the sensitivity of the P2O experiment in the measurement of the CP-violation phase in the lepton sector for the previously considered neutrino beams. The choice of the optimal variant of the neutrino beam ensuring the maximal sensitivity of the P2O experiment is carried out.

Primary author(s) : Prof. SOKOLOV, Anatoly (National Research Centre "Kurchatov Institute" – IHEP); Dr. GORYACHEV, Vladimir (National Research Centre "Kurchatov Institute" – IHEP); Dr. KIRSANOV, Mikhail (The Institute for Nuclear Research of the Russian Academy of Sciences); Dr. NOVOSKOLTSEV, Fedor (National Research Centre "Kurchatov Institute" – IHEP); Mr. SINYUKOV, Roman (National Research Centre "Kurchatov Institute" – IHEP)

Presenter(s) : Prof. SOKOLOV, Anatoly (National Research Centre "Kurchatov Institute" – IHEP)

Session Classification : Neutrino

Track Classification : Neutrino physics