

Invisibles 14 Workshop



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Search for a 4th neutrino with CeSOX

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The CeSOX project aims at testing the reactor antineutrino and Gallium anomalies, which can be interpreted as oscillations of active neutrinos toward a fourth (sterile) neutrino species in the very short baseline regime. The CeSOX experimental concept consists in deploying an intense (3-5 PBq) radioactive antineutrino source made of ^{144}Ce , in the vicinity of the Borexino detector located at LNGS (Italy). The cerium will be extracted and isolated from spent nuclear fuel at the PA Mayak (Russia) facility. A shielding of tungsten heavy alloy ensures biological protection and a low background level during the experiment.

In order to achieve the best sensitivity, precise knowledge of the antineutrino spectrum shape and rate are required. This poster intends give an overview of the project and its challenges and to present the last progress in the source readying. A particular focus is then put on the source characterization.

Based on work done with T. Lasserre, M. Durero

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