

# Sensitivity studies and systematics of the SOX project

*Tuesday, 6 October 2015 16:00 (15)*

In the last years, several neutrino oscillation experiments reported results not compatible within the 3-neutrino model, which hint at the existence of light sterile neutrinos. To test this hypothesis, the SOX (Short distance neutrino Oscillations in Borexino) experiment will search for oscillations from active to sterile neutrinos by placing radioactive electron (anti-)neutrino sources underneath the Borexino detector. Oscillations will be observed via a reduction of the detected interaction rate of the electron(anti-)neutrinos and an oscillatory pattern as a function of the neutrino energy and travelled distance.

The talk will give an overview of the project and of the expected discovery potential for a 100kCi  $^{144}\text{Ce}$  source. The major challenges of determining the activity and the energy distribution of the source are discussed with focus on their impact on the experimental sensitivity.

## Presentation type

Section talk (10+5 min)

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