

ESSnuSB+: non-beam neutrino physics and sterile neutrinos at near detectors

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The ESSnuSB project aims to measure the leptonic CP violation at the second neutrino oscillation maximum using an intense neutrino beam.

ESSnuSB+ is a continuation of this study which focuses on neutrino interaction cross-section measurement at the low neutrino energy region as well as the study of the sensitivity of the experimental set-up to additional physics scenarios. Among them, it proposes to search for atmospheric, Supernovae and Solar neutrinos at the Far Detector and to study sterile neutrinos at the Near Detectors.

In this talk, we summarize the expected ESSnuSB+ physics reaches on the study of non-beam neutrino oscillation physics. Moreover we

describe the capabilities of the experiment in constraining 3+1 sterile neutrino model using neutrinos reaching near detectors from two different neutrino beams: a monitored beam produced by pion decays and a beam produced by muons circulating in a muon storage ring.

Alternate track

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