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Physics potential of the ESSnuSBplus setup

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In this talk, I will discuss the physics potential of ESSnuSBplus setup on behalf of the ESSnuSB collaboration. ESSnuSB is an upcoming neutrino oscillation experiment to be based in Sweden. The ESSnuSBplus set up will consist of three neutrino sources i.e., the main neutrino beam from the ESS linac, low energy neutrinos from a monitored beam (LEMNB), and low energy neutrinos from a muon storage ring (LEnuSTORM). The neutrinos from the ESS linac will be detected at a distance of 360 km using a far detector (FD) to study neutrino oscillations at the second oscillation maximum. This far detector will be also used to study neutrinos from Sun, Earth's atmosphere and future supernova explosion. The neutrinos from LEMNB will be detected at a near detector (LEMMOND) located at a distance of 50 m to measure cross-section to reduce the systematic uncertainties. Whereas the neutrinos from LEnuSTORM, will be detected both at LEMMOND and another near detector (END) located at a distance of 250 m. This beam will be used to measure cross-sections as well to study light sterile neutrinos. In this talk, I will present some of our results for this whole setup, showcasing the capability of this powerful ESSnuSBplus setup.

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