

ESSnuSB and the precise measurement of leptonic CP violation at the second neutrino oscillation maximum

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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 produced by the powerful ESS proton linear accelerator in Sweden. This next-to-next generation long baseline neutrino oscillation experiment has a potential to start the precision era in the field of the leptonic CP violation measurement. Indeed, the reduced impact of systematic errors on sensitivity at the second maximum allows for a very precise measurement of the CP violating parameter. In this talk we will show the expected performances of ESSnuSB on δ_{CP} determination and describe in details the advantages to search for neutrino oscillation at their second maximum. Furthermore, we will summarize the other rich physics potentials of this experiment and of its extension phase, the ESSnuSBplus project.

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