

Abstract Submitted
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The Design of the Linac Power Upgrade, the Accumulator Ring and the Target Station of the ESS-Based Long-baseline Neutrino Project ESSnuSB YE ZOU, Uppsala University, Sweden, MAMAD ESHRAQI, ESS, Sweden, TORD EKELOF, Uppsala University, Sweden, ESSNUSB COLLABORATION¹ — According to the baseline design of the 5 MW accelerator under construction in Lund, Sweden, its duty cycle will be only 4%, which leaves room for increasing the beam power and duty cycle to 10 MW and 8%, respectively. The linac power upgrade will be realized by increasing the linac pulse frequency from 14 to 28 Hz. The ESS linac pulse is 3 ms long which is too long for the cosmic ray related background in the far neutrino detector and a 400 m circumference accumulator ring will be used to compress the beam pulse to 1.3 s. In order to be able to handle the high proton beam power, the target station will comprise four separate granular targets with neutrino horns and a decay tunnel. A review will be given of the current results of the design and simulation work on the linac power upgrade, on the pulse compressing accumulator ring and on the target station.

¹European Spallation Source neutrino Super Beam

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