Snowmass Joint Workshop on New Physics Opportunities with Neutrino Experiments: Theoretical & Experimental Perspectives

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Study of invisible neutrino decay at ESSnuSB

Friday 11 February 2022 12:45 (15 minutes)

In this presentation I will discuss the phenomena of invisible neutrino decay in which a heavy active neutrino state decays into a light sterile neutrino state and present a comparative analysis of two baseline options, 540 km and 360 km, for the ESSnuSB experimental setup. In particular, I will discuss the capability of this experiment to: (i) put a bound on the decay parameter, (ii) discover decay, and (iii) measure the decay parameter precisely. I will also discuss the effect of decay in $\delta_{\rm CP}$ measurement.

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