

# Ultrarelativistic sneutrinos at the LHC and sneutrino-antisneutrino oscillation

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Sneutrino-antisneutrino oscillation can be a very useful probe to look for signatures of lepton number violation ( $\Delta L = 2$ ) at the LHC. Here, we discuss the effect of the boost factor  $\gamma$  and the travelling distance  $L$  on the probability of the oscillation. We demonstrate that these two parameters can significantly alter the probability of the oscillation when the sneutrinos are ultrarelativistic and have a very small total decay width. We propose a scenario where these requirements are fulfilled and which produces interesting signals at the LHC even for a mass splitting  $\Delta m$  as small as  $10^{-14}$  GeV between the sneutrino mass eigenstates.

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