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Quasi-Dirac neutrinos in the linear seesaw model

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We implement a minimal linear seesaw model (LSM) for addressing the Quasi-Dirac (QD) behaviour of heavy neutrinos, focusing on the mass regime of $M_N < M_W$.
Here we show that for relatively low neutrino masses, covering the few GeV range, the same-sign to opposite-sign dilepton ratio, $R_{\ell\ell}$, can be anywhere between 0 and 1, thus signaling a Quasi-Dirac regime. Particular values of $R_{\ell\ell}$ are controlled by the width of the QD neutrino and its mass splitting, the latter being equal to the light-neutrino mass m_ν in the LSM scenario. The current upper bound on m_{ν_1} together with the projected sensitivities of current and future $|U_{N\ell}|^2$ experimental measurements, set stringent constraints on our low-scale QD mass regime. Some experimental prospects of testing the model by LHC displaced vertex searches are also discussed.

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