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Exact parametrization of a minimal seesaw model

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We propose a parametrization of neutrino masses and mixing in the minimal seesaw model (MSM). The MSM, which introduces two heavy sterile neutrinos, is the minimal extension of the Standard Model in addressing the tiny masses of active neutrinos. The parametrization includes 11 free parameters: 6 neutrino oscillation parameters (2 mass-squared differences Δm_{21}^2, Δm_{31}^2, 3 mixing angles θ_{12}, θ_{13}, θ_{23}, and 1 Dirac phase δ_{CP}), 1 mass parameter in $0\nu2\beta$ decay m_{ee}, and 4 additional parameters: 2 heavy neutrino masses M_1 and M_2, 1 active-sterile mixing angle θ_{14} and 1 CP-violating phase δ_{14}. This parametrization is derived exactly from the most general neutrino mass matrix in the MSM without any approximation. We further discuss its implications in phenomenological studies.

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