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Numerical analysis of a general Majorana mass texture consistent with latest cosmological bound

The neutrino oscillation parameters are numerically extracted through the diagonalization of a general Majorana neutrino mass matrix whose elements are randomly generated within certain range of allowed values. The allowed values of each element are determined by using the latest neutrino oscillation experimental data within 3σ. The latest Planck upper bound on the sum of three absolute masses, $\sum |m_i| < 0.12$ eV is imposed in the numerical analysis. Both normal and inverted hierarchical mass models satisfy the latest Planck cosmological bound, $\sum |m_i| < 0.12$ eV, showing the possibility of both hierarchies within 3σ. Further, the detailed numerical analysis confirms that normal hierarchical mass model can give upto $\sum |m_i| \geq 0.06$ eV but the inverted hierarchical mass model can give upto $\sum |m_i| \geq 0.1$ eV. In both models, the value of θ_{23} lies below and above 45^0. However, $\theta_{23} > 45^0$ is more favourable for NH whereas $\theta_{23} < 45^0$ is more favourable for IH.

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