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Symmetry properties in diagonalizing the mass matrix

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A Hermitian matrix can be parametrized by a set of variables consisting of its determinant and the eigenvalues of its sub-matrices. Along this line, correlations between these parameters and the physical mixing observables are investigated. The relations may be simplified by considering their symmetry properties. We establish a group of equations which connect these variables with the mixing parameters of diagonalization. These equations are simple in structure and manifestly invariant in form under the symmetry operations of dilatation, translation, rephasing and permutation. When applied to the problem of neutrino oscillation in matter, these relations lead to two new "matter invariants" which are confirmed by available data.

Alternate track

I read the instructions above

Yes

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