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Neutrino mixing in a rephasing invariant parametrization

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Six rephasing invariant combinations can be constructed from elements of the neutrino mixing matrix V: $\Gamma_{ijk} = V_{1i}V_{2j}V_{3k} = R_{ijk} - iJ$, where (i, j, k) is cyclic permutation of $(1, 2, 3)$, R_{ijk} is the real part, and the common imaginary part J is identified with the Jarlskog invariant. In terms of this rephasing invariant parametrization, the squared elements of the neutrino mixing matrix are found to satisfy, as functions of the induced mass, a set of differential equations. They show clearly the dominance of pole terms when the neutrino induced masses cross. Using the known vacuum mixing parameters as initial conditions, it is found that these equations have very good approximate solutions, for all values of the induced mass. The results may be applicable to Long Baseline Experiments (LBL).

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