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Invariants of CP violation for Majorana neutrinos in the seesaw mechanism

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We calculate several types of commutators associated with the leptonic Yukawa coupling matrices in the canonical seesaw mechanism, which can be used to measure leptonic CP violation in both heavy Majorana neutrino decays and light Majorana neutrino oscillations **in the flavor basis**. The corresponding Jarlskog-like invariants of CP violation and their small non-unitarity effects are derived **in the mass basis** with the help of a full Euler-like block parametrization of the seesaw flavor structure. A geometrical description of leptonic CP violation in terms of the unitarity polygon in the complex plane, together with some currently available experimental constraints, is also discussed.

Secondary track

T07 - Flavour Physics and CP Violation

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