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Quantum Boltzmann equations in resonant leptogenesis

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The set of quantum Boltzmann equations relevant for leptogenesis is derived using non-equilibrium quantum field theory. They manifest memory effects leading to a time-dependent CP asymmetry which depends upon the previous history of the system. This result is particularly relevant in resonant leptogenesis where the asymmetry is generated by the decays of nearly mass-degenerate right-handed neutrinos. The impact of the non-trivial time
evolution of the CP asymmetry is presented either in the generic resonant leptogenesis scenario or in the more
specific Minimal Lepton Flavour Violation framework. We show that significant quantitative differences arise with respect to the usual approach in which the time dependence of the CP asymmetry is neglected.

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