

Formal integrals of one-dimensional time dependent Hamiltonians

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In the case of an one degree of freedom Hamiltonian which is a time periodic perturbation of a harmonic oscillator we find a formal integral of motion. This integral is a power series in the position and the momentum and has a periodic dependence in time.

We investigate numerically the behaviour of the integral when we compute higher orders of the power series. We also check how its convergence is influenced by the initial conditions and the perturbation parameter of the system.