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Review text:

It is well known that the so called Ermakov invariant of the classical time dependent harmonic oscillator is obtainable via an auxiliary singular, nonlinear Milne equation. In the early eighties, this observation has been transferred to quantum mechanics by Korsch et al. In the paper under review, this result is summarized and generalized. The existence of the invariant is interpreted as a certain phase-factor property with close relationship to the Wigner approach to quantum mechanics in one or more dimensions. The same form of invariance is shown to exist also for the nonlinear Schroedinger equation (here, the Milne equation must be slightly generalized) and for the linear Schroedinger equation in the presence of a magnetic field (in this setting, the Aharonov Bohm effect is offered a new interpretation). A few physical speculations are added, concerning the possible deeper role and interpretation of phase in the quantum wave function.