

Retro-causal Quantum Effects from Broken Time Reversal Symmetry

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Abstract. Quantum effects arising from manifestly broken time-reversal symmetry are investigated using time-dependent perturbation theory in a simple model. The forward- time and the backward-time Hamiltonians are taken to be different and hence the forward and backward amplitudes become unsymmetrical and are not complex conjugates of each other. The effects vanish when the symmetry breaking term is absent and ordinary quantum mechanical results such as Fermi Golden rule are recovered.

Keywords: Time reversal, Retro-causality, Golden rule, perturbation theory

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