

Time-reversal invariance and irreversibility in time-asymmetric quantum mechanics

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Abstract

The aim of this paper is to analyze the concepts of time-reversal invariance and irreversibility in the so-called 'time-asymmetric quantum mechanics'. We begin with pointing out the difference between these two concepts. On this basis, we show that irreversibility is not as tightly linked to the semigroup evolution laws of the theory - which lead to its non time-reversal invariance- as usually suggested. In turn, we argue that the irreversible evolutions described by the theory are coarse-grained processes.

Keywords: quantum mechanics, irreversibility, time-reversal invariance, time-asymmetry

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