Time in Quantum Mechanics

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Abstract

Time is often said to play in quantum mechanics an essentially different role from position: whereas position is represented by a Hermitian operator, time is represented by a c-number. This discrepancy has been found puzzling and has given rise to a vast literature and many efforts at a solution. In this paper it is argued that the discrepancy is only apparent and that there is nothing in the formalism of (standard) quantum mechanics that forces us to treat position and time differently. The apparent problem is caused by the dominant role point particles play in physics and can be traced back to classical mechanics

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