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The Physics on a Gravitational Wave Background

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It is a fact that the universe lives on a gravitational wave background (GWB). In this talk we start from this hypothesis. Due to the GWB, space-time is fluctuating in such a way that it locally resembles a lake with small waves and therefore quantum particles cannot follow geodesic trajectories, but rather follow stochastic trajectories. In the present talk, we begin by adding a stochastic term to the trajectories of quantum particles and derive the corresponding field equations of a quantum particle. Surprisingly we arrive at the Klein-Gordon equation in curved space-time. Since in the proper limit this equation reduces to a Schrödinger equation, this leads to the following relevant result: the Schrödinger equation can be a direct consequence of the fact that the universe lives in a GWB

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