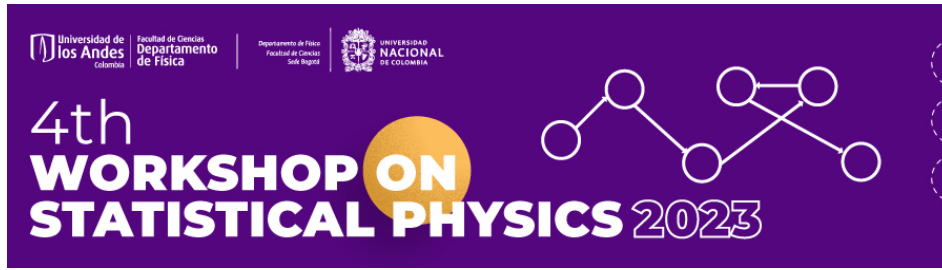


## 4th Workshop on Statistical Physics



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# Stochastic theories leading to quantum mechanics in curved space-time

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The universe lives on a Gravitational Wave Background (GWB). This GWB is extra energy that is not contained in Einstein's equations, and new models were developed to explain the accelerating expansion of the universe where a GWB is incorporated into Einstein's equations.

In this talk, we study this new paradigm: due to GWB, quantum particles cannot follow geodesics, but rather stochastic trajectories. We explore the different stochastic theories, namely Stochastic quantum Mechanics (SQM), Stochastic Electrodynamics (SED) and Scale Relativity (ScR), that lead to the generalized Klein-Gordon equation in curved space-time and generalized Schrödinger equation.

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