



entropy



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Stochastic and Hydrodynamic Approaches to Quantum Mechanics

Guest Editor:

Message from the Guest Editor

Deadline for manuscript
submissions:

closed (31 July 2020)

The probabilistic nature of quantum mechanics suggests a stochastic-based interpretation to its underlying physics, which differs from the orthodox Copenhagen one.

It therefore hints that quantum mechanics is a mean theory describing the particle ensemble average properties, resulting from stochastic motion, rather than describing the actual motion of a single particle. This is somewhat similar to the way in which hydrodynamics is a theory for the mean dynamical properties of the fluid rather than for its individual molecules. Since the pioneering works by Madelung, Bohm, Fenyés, and Nelson, which established this alternative perspective, substantial progress has been made by many researchers throughout the years. Nevertheless, this stochastic hydrodynamic-like approach has remained a side alley in the theory of quantum mechanics.

We here invite researchers to submit their contributions, both about recent results and review papers, in order to expand this side alley to a more central street in the theory of quantum mechanics. Focus is welcome on how this approach helps in understanding quantum information and entropy evolution in quantum systems.



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Special Issue



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Editor-in-Chief

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Message from the Editor-in-Chief

The concept of entropy is traditionally a quantity in physics that has to do with temperature. However, it is now clear that entropy is deeply related to information theory and the process of inference. As such, entropic techniques have found broad application in the sciences.

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