Special Issue

Recent Studies on Fokker–Planck Equation and Diffusion

Message from the Guest Editors

Robert Brown's experiments concerning the irregular motion of small pollen grains suspended in water were essential to understanding one of the most fascinating fields of science—diffusion—in terms of the particles' random motion. With elegant arguments, the pioneering works of Einstein and Langevin have shown how it is possible to model this phenomenon. These works were followed by the essential contributions of Smoluchowski, Fokker, Planck, and others, which started a new field of research, namely, the stochastic process, in which diffusion is a specific type of stochastic process. Diffusion may be connected to Markovian or non-Markovian processes. The first is characterized by a linear dependence on the mean square displacement, and the second has a nonlinear displacement for the second moment.

We invite scholars to contribute to this Special Issue in the exciting field of stochastic processes. Contributions may include studies on diffusion (usual or anomalous), Fokker–Planck equations and extensions with fractional differential operators or nonlinear terms, continuous-time random walks, Schrödinger equations and extensions, etc.

Guest Editors

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Prof. Dr. Rafael Soares Zola

Prof. Dr. Haroldo Valentin Ribeiro

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Message from the Editor-in-Chief

We get more and more evidence that quantum theory is the correct description of nature. It was born a century ago by explaining a few paradoxical results that could not be understood in the framework of classical physics. Today, quantum physics leads technological revolution in metrology, communication, computation, and the design of novel materials. Still it needs more solid foundations, and we need to develop a deeper understanding of how it can be used for new applications.

Quantum Reports is an online, open-access journal providing an advanced forum for clarifying foundations of quantum theory and developing its applications in all fields of physics and technology. *Quantum Reports* is inviting innovative and insightful contributions from the growing community of researchers of quantum science.

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