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Emerging Quantum Mechanics from Stochastic Dynamics of Virtual Particles

According to modern physics, the Newtonian interactions in the classical mechanics are arbitrated to exchange of virtual particles. Generally, it is expected that the virtual particle dynamics is stochastic, which is naturally resulting in random Newtonian potentials. An important example, for instance, is the stochastic electrodynamics [1]. In the present poster it is shown,how quantum mechanics emerges from the stochastic dynamics of the virtual particles. It is demonstrated that the quantum Wigner-Moyal equation corresponds to dynamic correlations between the momentum of the real particles and the position of the virtual particles [2], which are not present in the classical mechanics. The new paradigm throws light on the physical meaning of the Planck constant, which is the quintessence of the quantum theory. The present novel approach to quantum systems can be easily extended to the relativistic case [3].

References
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