

Many interacting worlds, quantum mechanics and Stein's method

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The “many worlds interpretation” of quantum mechanics purports that quantum effects are not due to the presence of a wave function but rather arise solely from the interaction of finitely many classical “worlds”. Hall, Deckert and Wiseman [Physical Review X 4 (2014) 041013] have introduced an explicit many-interacting-worlds harmonic oscillator model to provide support for this approach. McKeague and Levin [arXiv:1412.1563(2014)] provide a proof of their claim that the particle configuration is asymptotically Gaussian, thus matching the stationary ground-state solution of Schrödinger’s equation when the number of worlds goes to infinity. In this talk we explore the convergence phenomenon occurring at higher energy levels. This is joint work with Ian McKeague and Erol Peköz.