Abstract Submitted
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Entanglement genesis under continuous parity measurement ANDREW JORDAN, Univ. of Rochester — We examine the stochastic dynamics of entanglement for an uncoupled two-qubit system, undergoing continuous parity measurement. Starting with a fully mixed state, the entanglement is zero for a finite amount of time, when it is suddenly created, which we refer to as entanglement genesis. There can be further entanglement sudden death/birth events culminating in the formation of a fully entangled state. We present numerical investigations of this effect together with statistics of the entanglement genesis time in the weak measurement limit as well as the quantum Zeno limit. An analytic treatment of the physics is presented, aided by the derivation of a simple concurrence equation for Bell basis X-states. The probability of entanglement border crossing and mean first passage times are calculated for the case of measurement dynamics alone. We find that states with almost the same probability of entanglement border crossing can have very different average crossing times. Our results provide insights on the optimization of entanglement generation by measurement. Reference: N. S. Williams and A. N. Jordan, arXiv:0809.3248

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