

Abstract Submitted  
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**Simulation of Relativistic Open Quantum Systems: Antiparticle production in the presence of an environment** RENAN CABRERA, Princeton University, RABITZ GROUP TEAM — We present general strategies for simulating spin 1/2 relativistic open quantum systems interacting with an environment in addition to an external electromagnetic field. We illustrate our approach by simulating the production of antiparticles in the presence of quantum decoherence and energy dissipation. Important observations are made concerning the zitterbewegung effect and the total production of antiparticles.

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