

Abstract Submitted  
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**Numerical Studies of Time-Dependent Relativistic Quantum-Mechanical Systems** ATHANASIOS PETRIDIS, KHINLAY WIN, Drake University — Using the numerical staggered leap-frog method the time-dependent, interacting Dirac equation is solved for a variety of systems. Specifically the relativistic decay of spinors initially set in potential wells constant in time is studied and found to exhibit strong non-exponential features as well as non-monotonic dependence on the potential strength. The relativistic decay of mesons is examined as they propagate through a medium in view of the recent Relativistic Heavy Ion data. The employed method is very stable and fast and is implemented on standard desk-top computers without loss of accuracy for both one and three-dimensional systems.

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