Abstract Submitted
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**Symplectic Effective Field Theory**[1] DAVID KEKEJIAN, JERRY DRAAYER, KRISTINA LAUNEY, Louisiana State University — We explore the origins of symplectic symmetry, a dynamical symmetry that is commonly displayed in atomic nuclei, from the first principles of quantum field theory. We consider a simple Lagrangian that is an extension of the harmonic oscillator Lagrangian and show that the next approximation to the harmonic oscillator Hamiltonian is symplectic in nature. Our theory accurately predicts the coupling coefficient of the interaction, the time evolution of the dynamics, and in so doing reveals why symplectic algebraic models have historically proven to be so successful in describing nuclear systems.

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