Anticipation, Orbital Stability, and Energy Conservation in Discrete Harmonic Oscillators

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Computing Anticipatory Systems : CASYS'03 - Sixth International Conference
Daniel M. Dubois, Ed.
American Institute of Physics Conference Proceedings
AIP CP 718, pp. 3 – 44 (2004)

Abstract
We make a systematic analysis of the dual incursive model of the discrete harmonic oscillator. We derive its closed form solution, and identify its natural frequency of oscillation. We study its orbital stability, and the conservation of its total energy. We finally propose a superposed model that conserves energy with absolute precision, and exhibits a high degree of orbital stability. Within the conjecture that spacetime is discrete, the above results lead to the conclusion that discretization must be accompanied by anticipation, in order to guarantee orbital stability and energy conservation.