

**The Dual Incursive System  
of the Discrete Harmonic Oscillator**

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**Abstract**

This paper deals with the dual incursive system of the discrete harmonic oscillator, in the framework of discrete physics. Its basic premisses are that nature computes incursively, and that this is a consequence of the principle of maximum efficiency. The incursive system is based on two parallel algorithms depending on the order in which the computations are processed. Its incursivity, operationality, and duality are discussed. We study the system conceptually, analytically, numerically and graphically. We give a number of different formulations of the equations of motion, study the closed form solutions, shifted natural frequency of oscillation. We find the system to be operationally efficient, orbitally stable in phase space, and to possess constants of the motion having the dimensions of energy.