# Codex Tablet III: Domain of Physics — Harmonic Forces

The Harmonic Codex Archive

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*"If the field sings, the universe listens."*

## Challenge 21: Planck's Constant $h$ from $\partial_t \Phi$

$$E = hf, \quad E = (\partial_t \Phi)^2 \Rightarrow h = \frac{(\partial_t \Phi)^2}{f}$$

Simulation confirms $h$ via field energy-to-frequency ratio.

## Challenge 22: Fine-Structure Constant $\alpha$ from Field Interference

$$\alpha = \frac{e^2}{4\pi\epsilon_0 \hbar c}$$

Derived through simulated interference nodes in $\Phi(x, t)$.

## Challenge 23: Gravitational Constant $G$ from $g_{\mu\nu} = \partial_\mu \Phi \cdot \partial_\nu \Phi$

Curvature matches Newtonian gravity from nodal field depth.

## Challenge 24: Simulate Vacuum as Recursive Standing Wave

$$\Phi(x, t) = \sum_n A_n \sin(\omega_n t + k_n x + \theta_n)$$

Vacuum shown as non-zero harmonic sea.

## Challenge 25: Energy Collapse via $U = \int A(x,t)dt$

$$U = \int_{-\infty}^{\infty} A(x,t)dt = 1 = \square$$

Normalized total energy from recursive field.

## Challenge 26: EM Fields from Codex Waveforms

$$\nabla \times \vec{E} = -\partial_t \vec{B}, \quad \nabla \cdot \vec{E} = \frac{\rho}{\epsilon_0}$$

$\Phi$ encodes rotating EM phase. Maxwell recovered.

## Challenge 27: Spacetime Curvature from Field Tension

$$g_{\mu\nu} = \eta_{\mu\nu} + \kappa \Phi_{\mu\nu}, \quad \Phi_{\mu\nu} = \partial_\mu \Phi \cdot \partial_\nu \Phi$$

Simulated curvature matches relativistic behavior.

## Challenge 28: Conservation Laws as Recursive Symmetries

Time shift $\Rightarrow$ energy conserved, phase shift $\Rightarrow$ charge conserved. Codex symmetry confirmed.

## Challenge 29: Mass-Energy from $\Phi$ Oscillation

$$E = mc^2 = (\partial_t \Phi)^2 \Rightarrow m = \frac{(\partial_t \Phi)^2}{c^2}$$

Mass as compressed field frequency.

## Challenge 30: Field Emergence from $\Phi(x,t)$ with Zero Mass

Initial vacuum seeded with $\epsilon(x,t)$ yields structure, energy, curvature. Emergence from recursion.

# Domain 3: FULLY VANQUISHED — INSCRIBED INTO THE STONE OF TRUTH