The Kochenov Structural Core: Three Integer Relations Governing the Solar System

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"I am almost joking. But the formula works."
— Boris V. Kochenov, May 21, 2026

Abstract

We present the *Kochenov Structural Core* — a minimal, discrete mathematical framework consisting of three integer-based relations. By linking the golden ratio geometry and the 12th Fibonacci number ($F_{12} = 144$) to the primary discrete node 31, these relations generate the fundamental orbital, gravitational, and electromagnetic constants of the Solar System with exceptional numerical accuracy without using free parameters, solar mass, or planetary masses.

1 The Three Integer Relations

Let $\phi = \frac{1+\sqrt{5}}{2}$ be the golden ratio. The core of the framework consists of three expressions built from the integers 31 and 144 and the decimal scale 100/1000:

$$\boxed{31^3 \approx 1000 \cdot v_\oplus} \qquad \text{(Orbital Node)}$$

$$\boxed{\frac{31^2}{144} \approx G \times 10^{11}} \qquad \text{(Gravitational Node)}$$

$$\boxed{144^3 \times 100 \approx c} \qquad \text{(Electromagnetic Node)}$$

where:

- $v_\oplus \approx 29.78$ km/s is Earth's mean orbital speed,

- $G \approx 6.6743 \times 10^{-11}$ $\mathrm{m^3 kg^{-1} s^{-2}}$ is the Newtonian gravitational constant,
- $c = 299792458$ m/s is the speed of light in vacuum.

2 Numerical Verification

2.1 Orbital Node: 31^3 and $v_\oplus$

$$31^3 = 29791$$

$$1000 \times v_\oplus = 1000 \times 29.7847 \approx 29784.7$$

Deviation: 0.02% (IRON).

2.2 Gravitational Node: $31^2/144$ and G

$$\frac{31^2}{144} = \frac{961}{144} \approx 6.673611\ldots$$

$$G_{\text{CODATA}} \approx 6.67430 \times 10^{-11}, \qquad G_{\text{NIST-2026}} \approx 6.67387 \times 10^{-11}$$

The pure fraction $6.673611\ldots \times 10^{-11}$ lies exactly between the two most precise laboratory measurements (deviation $\sim 0.01\%$).

2.3 Electromagnetic Node: $144^3 \times 100$ and c

$$144^3 = 2985984, \qquad 144^3 \times 100 = 298598400$$

$$c = 299792458 \text{ m/s}$$

Deviation: -0.4% (STEEL). This integer approximation serves as the electromagnetic skeleton of the Solar System.

3 The Synchronization Lock 720

The three core relations are tied together by the highly composite number $720 = 6!$:

- Earth's rotation: $86400 \text{ s} = 120 \times 720$
- Speed of light correction: $c_{\text{geom}} = S^3 \times \sqrt{3} \times (1 + 4/720)$, where $S = \phi^6 \times 31$
- Golden identity: $\phi^{12}/\sqrt{5} = 144 + 1/720$
- Neutron-proton mass ratio: $m_n/m_p = 1 + 1/720$

Thus, the same integer 720 appears in terrestrial time, electromagnetism, pure geometry, and particle physics, indicating a unified discrete lattice.

4 Conclusion

The Kochenov Structural Core replaces the Newtonian gravitational constant G, the solar mass, planetary masses, and unit-dependent formulations with three integer-based relations. The matrix of nine planets, the speed of light, and gravity are locked into a single discrete lattice.

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