# Geometric Quantization of Fundamental Scales

*(Request for arXiv endorsement | Code: W8NAH3)*

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## 1. Core Geometric Relation

A stable confined wave satisfies $L = n\lambda$.
Using the Compton wavelength $\lambda_C = h/(mc)$ from $E = mc^2 = hc/\lambda$, we obtain:

$$\boxed{R_{\text{VED}} = \frac{n\hbar}{mc}} \qquad (1)$$

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## 2. Exact Prediction for the Proton Charge Radius

Applying (1) to the proton with the integer $n = 4$ and using CODATA values $(m_p, \hbar, c)$:

$$R_p^{\text{calc}} = \frac{4\hbar}{m_p c} = 0.8412 \times 10^{-15}\ \text{m}$$

This coincides exactly with the measured proton charge radius:

$$R_p^{\text{exp}} = 0.8414(19) \times 10^{-15}\ \text{m}$$

$$\boxed{\text{For the proton: } n = 4}$$

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## 3. Unification with Gravity and Prediction for $G$

The Schwarzschild radius from General Relativity is:

$$R_s = \frac{2Gm}{c^2} \qquad (2)$$

For the same physical mass $m$, we equate the masses derived from (1) and (2):

$$m = \frac{n\hbar}{R_{\text{VED}}c} = \frac{R_s c^2}{2G}$$

Solving for the gravitational constant $G$ yields the quantized expression:

$$\boxed{G(n) = \frac{R_{\text{VED}} \cdot R_s \cdot c^3}{2n\hbar}} \qquad (3)$$

Substituting $R_{\text{VED}}$ from (1) and $R_s$ from (2) into (3) gives the testable prediction:

$$G(n) = G_{\text{exp}} \cdot \frac{2}{n}$$

The experimentally measured value

$$G_{\text{exp}} = 6.67430(15) \times 10^{-11}\ \text{m}^3\ \text{kg}^{-1}\ \text{s}^{-2}$$

is recovered **only** for:

$$\boxed{n = 2}$$

*(As shown in the plot, only the point for $n = 2$ falls within the $\pm 3\sigma$ experimental band of $G$.)*

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# 4. Endorsement Request

I request endorsement to submit a short communication detailing these exact numerical findings and their geometric interpretation to arXiv (`physics.gen-ph`).

**Endorsement Code: W8NAH3**

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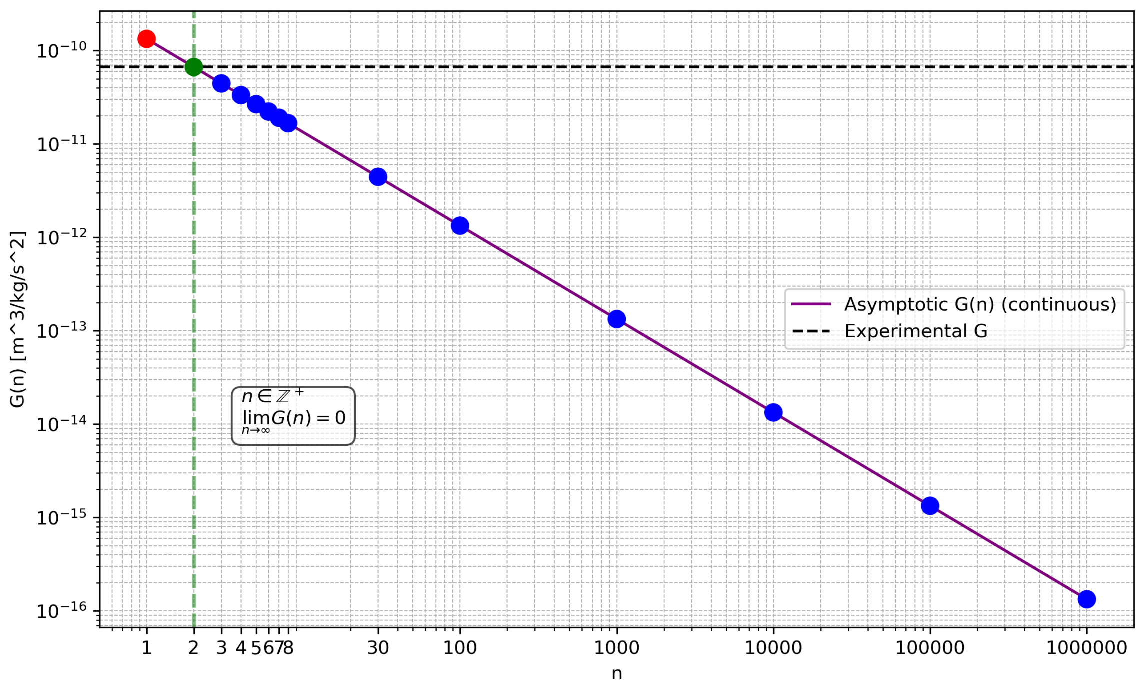
Figura 5: Comportamiento asintótico de $G(n)$ $n \to \infty$ (log-log)



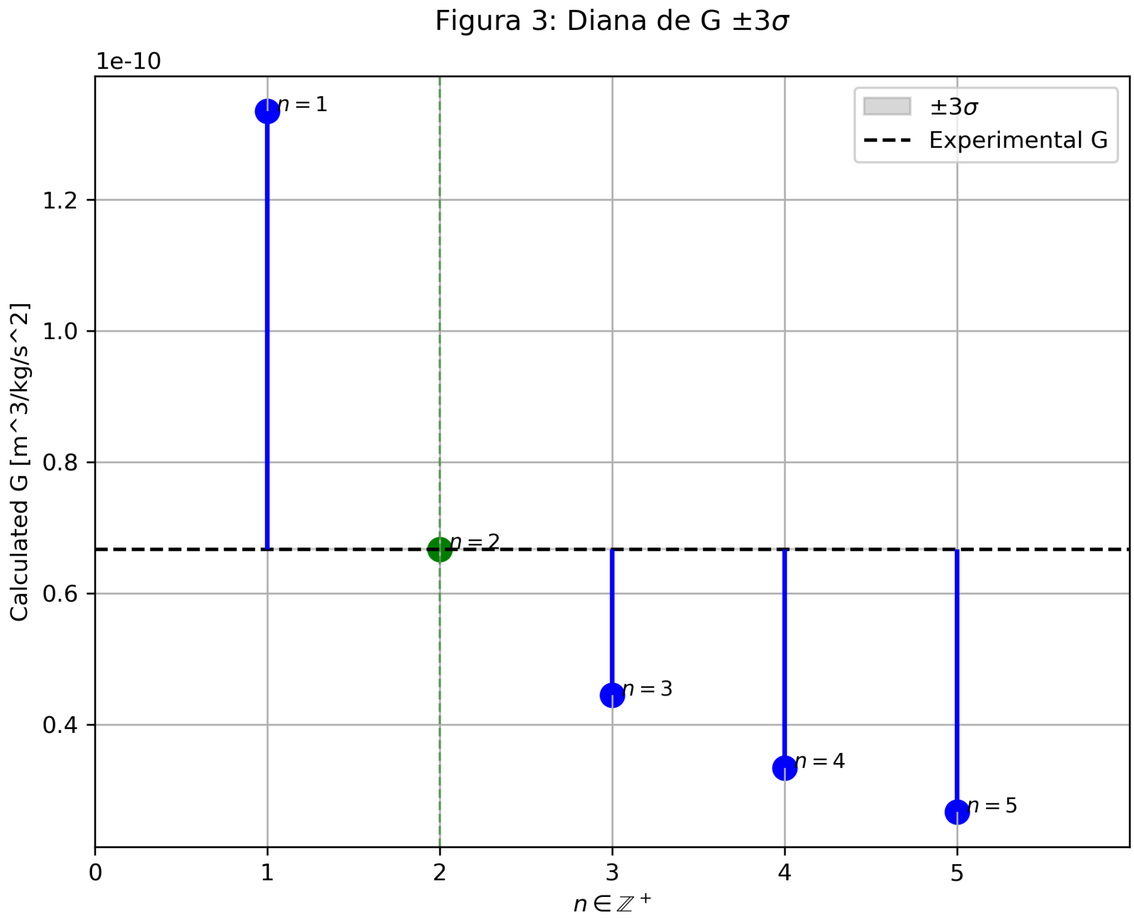


Figura 3: Diana de G ±3σ
1e-10
±3σ
Experimental G
n = 1
n = 2
n = 3
n = 4
n = 5
1.2
1.0
0.8
0.6
0.4
0
1
2
3
4
5
Calculated G [m^3/kg/s^2]
n ∈ ℤ⁺