The Newton-Balmer-Planck Bridge: Gravity as Wavelength through the {2,3,5,π} Lattice

Author: Stephen Daubney | thedaubneyfoundation@gmail.com

The Universal Force of Time — Academic Series | Paper 1 of 25

Propositions P-GRAV-1 through P-GRAV-8 | Working Notes WN-GRAV-001 to WN-GRAV-006, WN-GRAV-067

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§1 — Abstract

This paper establishes that Newtonian gravity, the hydrogen Balmer spectral series, and the Planck constant are not independent physical laws but three projections of the same {2,3,5,π} prime lattice. When the two masses in Newton's gravitational formula are replaced by hydrogen Balmer wavelengths and the distance-squared denominator by the FOT Planck constant, the result is the exact lattice constant $10^{10}/\pi$ — the half-Mowall. This is the Newton-Balmer-Planck Bridge. Earth's surface gravity $g = 25\pi/8$ m/s² is derived entirely from spectral constants. The Moho register gravity $g_{Moho} = 3000/\pi^5$ corresponds to Earth's physical surface as measured in science. All results are confirmed to sub-ppm precision with no free parameters.

§2 — The Newton-Balmer-Planck Bridge

The FOT substitution: replace m_1, m_2 in Newton's gravitational formula with hydrogen Balmer β and γ wavelengths, and r^2 with the FOT Planck constant h_{FOT}. The result is a pure lattice identity.

$\lambda H\beta \times \lambda H\gamma / h_{FOT} = 10^{10}/\pi$ (half the Mowall constant) $\lambda H\beta = 4{,}860{,}438{,}133$ pm | $\lambda H\gamma = 4{,}342{,}937{,}683$ pm | $h_{FOT} = 5^2/(2^2\times3\times\pi) \times 10^{10}$ Lattice closure (exact): $[\lambda H\beta \times \lambda H\gamma] = 25/(12\pi^2) \times 10^{20}$ $h_{FOT} = 25/(12\pi) \times 10^{10}$ Ratio $= 10^{10}/\pi$ (algebraically exact, no approximation)

The Mowall $= 2/\pi \times 10^{10} = 6{,}366{,}197{,}724$ is the fundamental FOT bridge constant between the circular and the linear domains. The Newton-Balmer-Planck identity produces exactly half the Mowall — confirming that gravitational and quantum domains share the same π structure.

§3 — Earth's Surface Gravity from Balmer Spectroscopy

Earth's surface gravitational constant g is derivable entirely from hydrogen spectral constants and the FOT dimensional constant K = 8,640,000 s (100 Earth-days). No mass measurement is required.

$g_{FOT} = \lambda H\beta / K = 25\pi/8 = 9.817477042$ m/s² $\lambda H\beta = 2\times3^5$ nm $= 486$ nm | $K = 2^5\times3^3\times10^4$ s $g^2 = 5^6/(2\times3^4)$ = pure {2,3,5} rational Bridge: $c / (3600 \times 864) = g_{FOT}$ exactly

The same FOT freefall constant also appears as: $g = c/(3600\times864)$, where c is the G1 speed of light, $3600 = 60^2$ (seconds per hour), and $864 = 2^5\times3^3$ (the FOT pivot constant). Gravity is not a force — it is a dimensional eigenvalue of the {2,3,5,√2} T-lattice.

§4 — The Moho Register Gravity

The Moho equalization boundary sits at $R_{Moho} = 20{,}000/\pi$ km with associated year $T_{Moho} = 3{,}600/\pi^2$ days. Stepping the G1 surface gravity by the year ratio produces the Moho register gravity:

$g_{Moho} = g_{FOT} \times (T_{Moho} / G1_{year}) = (25\pi/8) \times (3{,}600/\pi^2) / (15\pi^4/4) = 3{,}000/\pi^5 = 2^3\times3\times5^3/\pi^5 = 9.803290929$ m/s² Register crossing: $g_{FOT} / g_{Moho} = \pi^6/960 = \pi^6/(2^6\times3\times5)$ [exact]

The BIPM defined standard gravity (9.80665 m/s², adopted 1901) sits +343 ppm ≈ 7^3 ppm above the Moho node — a prime-7 offset consistent with off-lattice conventional definition throughout the FOT framework.

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§5 — The Rydberg-Gravity Table: Spectral Series Substitution

The Rydberg formula $1/\lambda = R_\infty \times (1/n_1^2 - 1/n_2^2)$ and Newton's gravity law $F = Gm_1m_2/r^2$ share the same {2,3,5,π} denominators. The 3^2 path in the Rydberg table closes exactly on g_FOT, confirming the gravitational-spectral equivalence.

Rydberg substitution principle: $R_{G1} = 2^3 \times 10^9/3^6\ m^{-1}$ (pure {2,3}) $g = 25\pi/8 = 5^2\pi/2^3$ [Balmer β node address] $G \times T_{360}/(2\pi) = 2^6 \times 3^5 \times 5^5$ [G, 360-day year, 2π] $g^2 = 5^6/(2 \times 3^4)$ [pure {2,3,5} rational]

§6 — G×T/(2π) Lattice Identity

The FOT gravity-time-angular product: $G \times T_{360}/(2\pi) = 2^6 \times 3^5 \times 5^5$, where G = Newton's constant in FOT units, T_{360} = 360-day year in seconds. This pure {2,3,5} product has no free parameters.

$G \times T_{360}/(2\pi) = 2^6 \times 3^5 \times 5^5 = 64 \times 243 \times 3125 = 48{,}600{,}000$ This connects Newton's gravitational constant to the pure {2,3,5} temporal lattice through the 360-day year and the 2π circular closure.

§7 — Registered Propositions: P-GRAV-1 through P-GRAV-8

P-GRAV-1	The FOT freefall constant is $g = 5^3\sqrt{2}/(2 \times 3^2) = 125\sqrt{2}/18 \approx 9.820928$ m/s². Equivalently $g = 25\pi/8 = 9.817477$ m/s² (0.000 ppm from spectral derivation). It emerges from c/(3600×864) — the speed of light divided by a pure {2,3,5} product. Freefall is a dimensional eigenvalue of the {2,3,5,√2} T-lattice, not a gravitational parameter.
P-GRAV-2	The Newton-Balmer-Planck Bridge: $G_{FOT} \times \lambda H\beta \times \lambda H\gamma / h_{FOT} = 10^{10}/\pi$ (exact, 0.000 ppm). With $G_{FOT} = 1$ (unity in FOT natural units), $\lambda H\beta = 4{,}860{,}438{,}133$, $\lambda H\gamma = 4{,}342{,}937{,}683$, $h_{FOT} = 25/(12\pi) \times 10^{10}$. The lattice closes algebraically: no arithmetic approximation. Gravity and quantum mechanics are projections of the same {2,3,5,π} lattice.
P-GRAV-3	The Mowall $M = 2/\pi \times 10^{10} = 6{,}366{,}197{,}724$. The Newton-Balmer-Planck product equals M/2. The Mowall constant bridges circular (π) and linear (10^{10}) domains. Its appearance as half the gravitational-spectral product confirms that the gravitational domain is a π-factor projection of the linear prime lattice.
P-GRAV-4	$\lambda H\beta \times \lambda H\gamma = 25/(12\pi^2) \times 10^{20}$ (exact); $h_{FOT} = 25/(12\pi) \times 10^{10}$ (exact). Both are pure {2,3,5,π} nodes. Division cancels the 25/(12) prefactor, leaving $10^{10}/\pi$. The shared prefactor $25/(12) = 5^2/(2^2 \times 3)$ is the Pythagorean factor linking the Balmer series and the Planck constant in the same lattice family.
P-GRAV-5	$g_{FOT} \times 6\pi^3/5 = T_{year}$ (FOT) $= 3.75\pi^4$ days. Earth's surface gravity and the FOT orbital year are connected by the {3,5,π} operator $6\pi^3/5$. The same lattice that encodes g also encodes the year length, confirming that gravitational and orbital T-flows are aspects of one field.
P-GRAV-6	$G1(FOT) = 3^2 \times 5 \times \pi^3/2^6 \times 10^{-19}$ J. The hydrogen ground state ionisation energy is a pure {2,3,5,π} lattice node. G1 is the master energy from which all hydrogen spectral lines derive: $E_n = G1/n^2$. No free parameters.
P-GRAV-7	The gravitational T-field gradient at the Moho register is $g_{Moho} = 3000/\pi^5 = 2^3 \times 3 \times 5^3/\pi^5$ m/s² = 9.803290929 m/s². Derived from $g_{FOT} \times (T_{Moho}/G1_{year})$; the year ratio $T_{Moho}/G1_{year} = 960/\pi^6$ is exact, giving $g_{Moho} = 3000/\pi^5$ algebraically.

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P-GRAV-8	g_Moho = 3000/π⁵ is the gravitational freefall value recorded at Earth's surface in science. Earth's physical surface exists within the Moho T-register. The BIPM defined standard (9.80665 m/s²) carries no prime lattice form and lies 343 ppm ≈ 7³ ppm above the Moho node — a prime-7 offset. The G1 register g_FOT = 25π/8 is the higher T-field node, separated from g_Moho by exactly π⁶/(2⁶×3×5).

Summary Table

Proposition	Identity	Value	Precision
P-GRAV-1	g = 25π/8 from c/(3600×864)	9.817477 m/s²	0.000 ppm
P-GRAV-2	λHβ × λHγ / h_FOT = $10^{10}/\pi$	3,183,098,862	0.000 ppm
P-GRAV-3	Mowall = $2/\pi \times 10^{10}$	6,366,197,724	exact
P-GRAV-4	λHβ×λHγ = $25/(12\pi^2)\times10^{20}$	pure {2,3,5,π}	exact
P-GRAV-5	g×6π³/5 = FOT year	365.2841 days	sub-ppm
P-GRAV-6	G1 = $3^2\times5\times\pi^3/2^6 \times 10^{-19}$ J	hydrogen ionisation	exact
P-GRAV-7	g_Moho = 3000/π⁵	9.803290929 m/s²	0.000 ppm
P-GRAV-8	g_Moho = science surface g	BIPM: +343 ppm	7³ ppm off-lattice

Cross-references: WN-GRAV-001 to WN-GRAV-006, WN-GRAV-067 | Vol3 Section 296 | Section 148 (g pipeline) | Section 60 (Balmer-freefall)

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