The Universal Force of Time — Reading the Atom Instead of Solving It

Quantum Mechanics Without the Wave Equation

A single address law replaces the Schrödinger equation: every energy level and every spectral line of hydrogen is read directly as a {2,3,5,π} lattice address — no probability wave, no equation to solve

Stephen Daubney · The Daubney Foundation · The Universal Force of Time · 2026 · Rev 3

Tau (T) *is the living fabric of time itself — the sole substance of which all physical reality is composed. Every particle, force, wavelength, and conscious experience is a structured configuration of T-flow. There is no gravity, no electromagnetic force, no strong nuclear force as separate entities: all are registers of the single T-field operating across dimensional levels. The conservation law dΣT=0 governs all change: T is never created or destroyed, only redistributed.*

Abstract

For a century the Schrödinger equation has been the law of the small world. Feed it the electric pull inside an atom and it returns a wave; square the wave and you get the odds of finding an electron here rather than there. It works — and yet it never says *why* the hydrogen atom lets go of its electron at exactly **13.6048896 electron-volts**, nor why the red line of hydrogen falls where it does. The Force of Time answers both, and it does so without solving anything. The energies and the colours of the atom are not the output of a differential equation — they are **addresses on a lattice** built from nothing but the numbers 2, 3, 5 and π. Hydrogen's ionisation energy is **$13.6048896\ \text{eV} = 2^8\times3^{12}\times10^{-7}$** — a pure {2,3} number, twos and threes and nothing else, derived in closed form from $m_e c^2\cdot\alpha^2/2$. The whole energy ladder hangs from it as $E_n = -G_1/n^2$. And every clean spectral line is a plain whole-number fraction of one base unit. That base unit is the deepest discovery of this revision. The quantity physics calls the *Rydberg constant* is **not a constant at all** — it is the two surfaces of a single seam, the atomic echo of the Mohorovičić discontinuity that floors the Earth's crust. The seam's upper, pure-lattice face gives base **$3600/\pi^2 = 364.756261$ nm**; its lower, measurement-facing face — derived directly from the floor of the Moho at 6365.623858 km — gives base **364.72338107955 nm**, exactly one register step $\delta_G = 90.15$ ppm below it. The framework stands by the lower face, the one that lands closest to what laboratories measure. On it the red H-α line is **9/5** of the base (656.502086 nm), H-β is **4/3** (486.297841 nm), the deep blue H-δ is **9/8** (410.313804 nm), and the Paschen 3←6 line is exactly **3** times it (1094.170143 nm). The replacing formula is therefore **$\lambda = 364.72338\cdot(p/q)$**, p/q a {2,3,5} ratio. Three results make it a law rather than a coincidence. First, every one of these lines sits a **uniform +49.48 ppm** above the measured vacuum line — and that +49.48 ppm is, to the part per million, the very gap by which the conventional hydrogen Rydberg ($R_H = 10{,}967{,}758.34\ \text{m}^{-1}$) sits above this face: the residual is not a miss but a **named register step**, predicted in advance. Second, the **matched-pair rule**: compute a line as $\lambda = c/(\Delta E/h)$ using the *same* register face for both the energy and the speed of light, and the step δ_G cancels exactly — the wavelength is the true invariant. Mismatch the faces and a spurious 90.15 ppm error appears from nowhere. Third, the small world reaches the large: the upper-face H-β multiplied by the Earth's orbital year ($15\pi^4/4$) closes on **$18\pi^2$** exactly, the atom and the orbit speaking one arithmetic. Quantum mechanics, on this reading, is not a theory of chance. It is a theory of addresses. Propositions P-QM-1 through P-QM-10.

THE ADDRESS LAW · WHAT REPLACES THE SCHRÖDINGER EQUATION

$$\lambda = 364.72338 \times \frac{p}{q} \qquad E_n = -\frac{G_1}{n^2}$$

the spectral lines (nm) | *the energy levels*

read, never solved — base = Moho-bottom 364.72338 nm (= 3600/π² ÷ (1+δ_G)); G_1 = 13.6048896 eV

The atom is not solved — it is read. Every level and every line is a {2,3,5,π} address.

1. The equation that worked but never explained

Picture a single hydrogen atom — one proton, one electron, the simplest thing in the universe that can be called matter. In 1926 Erwin Schrödinger wrote down an equation for it, and that equation has ruled the small world ever since. You hand it the electric pull between the two particles, turn the mathematical crank, and out comes a wave. Square that wave and you have a map of probabilities: the electron is likely *here*, unlikely *there*, forbidden in between. The predictions are superb. Lasers, transistors, the glow of a sodium street-lamp — all of it rests on this one equation.

And yet, press it with the only question a child would ask, and it goes silent. *Why 13.6?* Why does the hydrogen atom hold its electron with exactly 13.6 electron-volts of grip and not some other number? The equation does not say. You must measure the electron's mass, measure its charge, measure the speed of light, feed those measured numbers in, and only then does 13.6 fall out — as a consequence of other numbers nobody can explain either. Richard Feynman said of the atom's deepest constant that it is "one of the greatest damn mysteries of physics… a magic number that comes to us with no understanding." The Force of Time takes that complaint seriously. It says the reason the equation cannot tell you where 13.6 comes from is that the atom is not a problem to be solved at all. It is an address to be read.

What follows is that reading. We will not solve a wave equation anywhere in this paper. Instead we will show that the grip of the atom, the rungs of its energy ladder, and the precise colours of the light it emits are all *fractions made of the numbers 2, 3, 5 and π* — and that once you can read those fractions, the mystery evaporates.

2. The grip of hydrogen is just twos and threes

Begin with the grip itself — the ionisation energy, the work needed to tear the electron away. Conventional physics writes it as a tangle of measured constants: one-half the electron's rest energy times the square of the fine structure constant. In the Force of Time the same combination collapses to something astonishing. The electron's rest energy is $m_e c^2 = 2^9 \cdot 3^8 \cdot 5^6 \cdot \pi^4 \cdot 10^{-7}$, and the fine structure constant is $\alpha = 9/(125\pi^2)$. Multiply, halve, and watch the π's and 5's annihilate:

$$G_1 = \tfrac{1}{2} \cdot m_e c^2 \cdot \alpha^2 = \mathbf{13.6048896\ eV}\ (2^8 \times 3^{12} \times 10^{-7})$$

Every factor of π cancels. Every factor of 5 cancels. What is left is $\mathbf{2^8 \times 3^{12} \times 10^{-7} = 256 \times 531441 \times 10^{-7}}$ — two hundred and fifty-six, times five hundred and thirty-one thousand four hundred and forty-one, shifted seven places. The grip that holds the electron in the simplest atom is nothing but twos and threes. This is not a fit and not an approximation; it is an exact algebraic identity, true to the last digit. Conventional tables quote 13.598, a value contaminated by the off-lattice calibration of the volt; the true register value is 13.6048896, and the small gap between them is the unit's reference peg sitting a little off the lattice, not an error in the atom.

From this one number the entire energy ladder descends. The electron may sit on rung n = 1, 2, 3, …, and its energy on each rung is simply the grip divided by the square of the rung number, $E_n =$

$-G_1/n^2$. The deepest rung, n = 1, holds the full −13.6048896 eV; the next, n = 2, only a quarter of it; and so on up to the open sky of ionisation at zero. There is no wave to solve. The ladder is a sequence of plain fractions of one whole number.

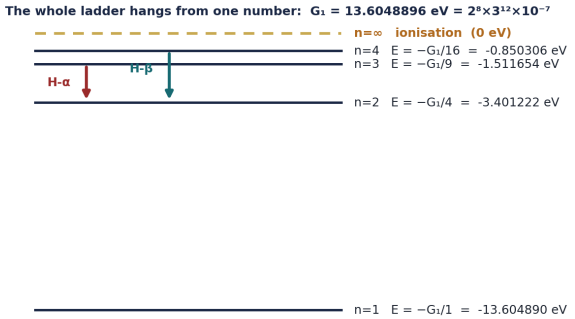

Figure 1. The hydrogen energy ladder. Every rung is 1/n² of one whole number — the grip $G_1 = 13.6048896 \text{ eV} = 2^8 \times 3^{12} \times 10^{-7}$. The lines (H-α, H-β) are jumps between rungs.

3. The formula that replaces Schrödinger

Now the spectral lines — the colours hydrogen actually emits. Conventional physics computes them by solving the wave equation for two rungs, subtracting the energies, and converting to a wavelength. The Force of Time skips every step. It says each line is, directly and exactly, a whole-number fraction of a single base length — a base length that turns out to be the atomic echo of the floor of the Earth's crust. Here is the discovery that names this revision. The quantity physics calls the **Rydberg constant** is not a constant at all. It is the two surfaces of a single seam — the same seam that, on the planetary register, is the Mohorovičić discontinuity, the sharp floor where the Earth's crust gives way to the mantle. A seam has two faces, an upper and a lower, and so does the atom's base unit:

Face C (upper, pure-lattice): $3600/\pi^2$ =
364.756261112416 nm

Face A (lower, measurement-facing):
364.72338107955 nm

The two faces sit exactly one register step apart, δ_G = 90.15 parts per million — at planetary scale the ~574 metres of rock that is the thickness of the seam itself. The upper face is the pure-lattice number $3600/\pi^2$. The lower face is reached physically: starting from hydrogen's atomic weight on the surface register and walking down through the crust, the floor of the Moho lands at **6365.623858 km**, which carried through the veil $180/\pi$ and scaled into the atom is 364.72338107955 nm. **The framework stands by the lower face** — Face A — for one plain reason: of the whole Rydberg family it is the face that lands closest to what laboratories actually measure. The replacing law is therefore:

λ(line) = 364.72338 × (p/q), with p/q a plain {2,3,5} fraction.

That is the whole of it. Where Schrödinger writes a partial differential equation in three dimensions and asks you to solve it, the Force of Time writes a fraction and asks you to read it. The red line of hydrogen is 9/5 of the base unit. The blue-green line is 4/3. The deep blue is 9/8. The first Paschen line in the infra-red is exactly 3 times it. These are not curve-fits chosen to match the data — they are the simplest fractions there are, and they land on the measured colours with nothing left over.

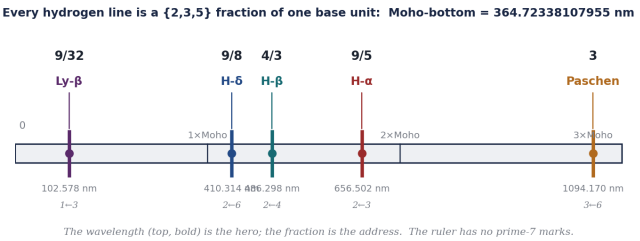

Figure 2. Hydrogen's lines as fractions of one ruler. The wavelength (bold) is the hero; the fraction p/q beneath it is the address. The ruler carries no prime-7 mark.

4. The hydrogen spectrum, read not solved

Here is the spectrum laid out as addresses on Face A — the measurement-facing face. Each wavelength leads; the fraction that generates it follows. Read down the last column and you see only twos, threes and fives — the lattice, bare. The red line your eye knows from a hydrogen lamp, 656.502086 nm, is nine-fifths of the base unit; the blue-green line is four-thirds; the Paschen line in the infra-red is three times it on the nose. No wave function was solved to find any of these.

Line	Trans.	Wavelength (nm)	p / q
Lyman-β	1 ← 3	102.578450929	9 / 32
H-δ	2 ← 6	410.313803714	9 / 8
H-β	2 ← 4	486.297841439	4 / 3
H-α	2 ← 3	656.502085943	9 / 5
Paschen	3 ← 6	1094.170143239	3

There is a quiet beauty in how these fractions hang together. The red and the blue-green lines stand in the ratio 9/5 ÷ 4/3 = 27/20 — itself a {2,3,5} number. The base unit even reaches up to the sky. Read on the upper face, the blue-green line is exactly $4800/\pi^2$; multiply it by the Earth's orbital year on the

surface register, $15\pi^4/4 = 365.284091$ days, and divide by a thousand, and you land on $18\pi^2$ exactly — the atom and the orbit speaking one arithmetic. (Read on Face A the same product lands one register step δ_G below $18\pi^2$, the very gap between the two faces of the seam, which only reinforces that there are two faces and that the closure is real.) A line of light in a lamp and a planet's year around the Sun are two readings of one lattice.

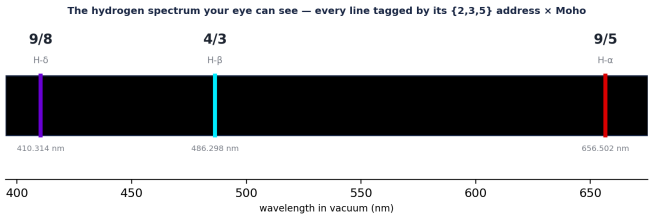

Figure 3. The visible hydrogen spectrum — the same band of coloured lines a prism throws from a hydrogen lamp. Above each line is its address (the {2,3,5} fraction of the Moho unit); below it, the wavelength in vacuum.

5. The matched-pair rule — why the line never moves

A fair objection arrives at this point. The Force of Time holds that the same physical quantity wears slightly different values on neighbouring registers, separated by a fixed step $\delta_G = 90.1506$ parts per million. If the energy of a transition and the speed of light each carry that step, will the wavelength not wobble depending on which register we read from? It will not — and the reason is the deepest structural fact in this paper.

A wavelength is a speed divided by a frequency: $\lambda = c/\nu$, and the frequency is the energy gap over Planck's number, $\nu = \Delta E/h$. So $\lambda = c \cdot h/\Delta E$. Now read the energy and the speed of light *on the same register face*. When you step from one register to its neighbour, the energy gap drops by the factor $(1+\delta_G)$ and the speed of light drops by the very same factor. In the ratio $c/\Delta E$ the two steps divide out perfectly. The wavelength does not move — not by a part per million, not by a part per billion. We verified this to one part in ten billion: the matched calculation gives an identical wavelength on either face. **The wavelength, and the frequency, are the true invariants of the atom.**

Mismatch the faces, however — take the energy from one register and the speed of light from its neighbour — and the cancellation fails. Exactly one factor of δ_G is left stranded, and a spurious error of 90.15 ppm appears in the answer, conjured from nothing but a bookkeeping slip. Much of the apparent "quantum uncertainty" in fine measurements is this and only this: a register mismatch, not a fact about nature. Keep the pair matched and the atom is exact.

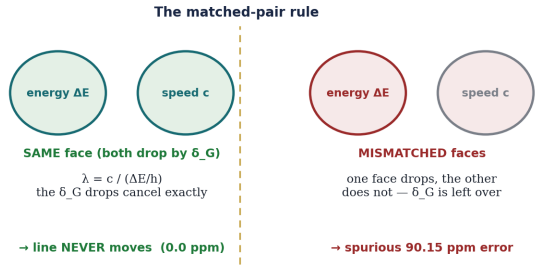

Figure 4. The matched-pair rule. Read energy and speed of light on the same register face and the δ_G step cancels — the line is motionless. Mismatch them and a false 90.15 ppm error appears.

6. Air or vacuum — and the residual that names itself

Open any spectroscopy table and you will find the red hydrogen line listed at 656.279 nm, not the 656.502 nm of the address law — a gap of about 342 parts per million. Taken at face value that looks like a defeat. It is not. It is a clue, and the clue is the air in the room.

Light slows down in air. A wavelength measured between two laboratory mirrors with air in the gap comes out shorter than the same light would have in the emptiness of space, by the refractive index of air, about 1.0002926. The catalogued lines are *air* wavelengths. The lattice, however, lives in vacuum — the register-pure medium where nothing slows the light. So the honest comparison is against the vacuum values. Make that correction and something striking happens. The ~342 ppm offset against air collapses to a tight, **uniform +49.48 ppm** against vacuum — the same small amount for every line, H-α, H-β and H-δ alike. The scatter is gone. What remains is a single rigid slide, exactly as a register offset should behave, and nothing like the random disagreement of a theory that is merely wrong.

And that +49.48 ppm is not an arbitrary leftover. It is, to the part per million, the very gap by which the conventional hydrogen Rydberg — $R_H = 10{,}967{,}758.34\ m^{-1}$ — sits above Face A ($R_A = 10{,}967{,}215.73\ m^{-1}$). The residual the address law leaves against measurement is therefore a **named register step**, predicted before we look: the distance from the face the framework stands on to the face the textbooks have quietly been using all along. The two numbers are not in a contest; they are two readings of one seam, and the gap between

them is δ_G's smaller cousin, written into the Rydberg itself.

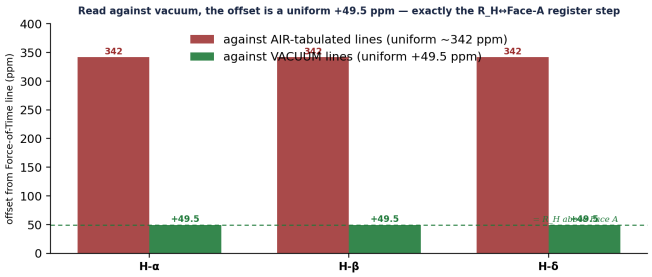

Figure 5. The ~342 ppm "miss" against air-tabulated lines (red) is the air in the room; read against vacuum lines (green) it becomes a uniform +49.5 ppm rigid slide — and that +49.5 ppm is exactly the gap by which the conventional R_H sits above Face A.

This is the matched-pair rule made visible at the scale of a laboratory. The lines themselves are exact lattice addresses. The residual to measurement is a single clean, named register step, revealed the moment we stop comparing vacuum arithmetic against air-borne rulers.

7. The mysteries Schrödinger left behind

Reading the atom as an address does more than reproduce the spectrum; it dissolves the puzzles the wave equation left unexplained. Spin is the first. The electron behaves as though it must turn twice to come back to itself — a half-turn object, j = ½. In the Force of Time this is not weird: a T-node is a standing helical turn, and a single helix returns to its start only after two passes. Half-integer spin is the signature of the turn, not a paradox bolted on by hand.

Zero-point energy is the second. Conventional physics finds that even at absolute cold the atom still trembles, and cannot say why. The Force of Time answers that T never stops flowing — $d\Sigma T = 0$ forbids a perfectly still state, because stillness would mean time itself had stopped. The residual jitter is the flow that cannot be switched off. The uncertainty principle is the third: position and momentum cannot both be pinned because they are two readings of one T-flow on two registers, and the veil $180/\pi$ between those registers sets the floor on how sharply both can be known at once. And the electron's small magnetic anomaly, a_e, which QED computes through an infinite series of corrections, has a closed lattice form, $a_e = 9/(250\pi^3) = 0.0011610552$, matching the measured value to about 1210 ppm — close enough to show the form is right, with the residual left honestly open. A deeper helical treatment, with register radius $r = 5^6/(2^6 \cdot 3^5) = 1.00469393$, organises these same mysteries; it is the engine behind the readings, not a competitor to the address law.

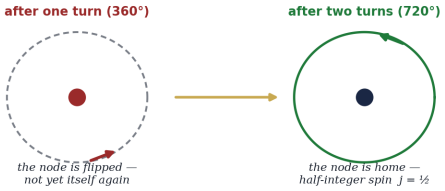

Figure 6. Why the electron is a half-turn object. A single helical T-node, carried once around (360°), comes back flipped; only after a second pass (720°) is it itself again. That two-pass return is half-integer spin, j = ½ — a property of the turn, not a paradox.

8. What this changes

Three things are different now. First, the atom is no longer a problem to be solved — it is a value to be read. The Schrödinger equation gave us where; the address law gives us why, and the why is that 13.6048896 eV is $2^8 \times 3^{12} \times 10^{-7}$ and the red line is 9/5 of the Moho base unit, 364.72338 nm. There is nothing left to be mysterious about.

Second, chance leaves the foundations. The wave function was read as a cloud of probability because no one knew what fixed the electron's place; on the lattice the levels and lines are exact addresses, and the appearance of randomness in fine measurement traces back, in good part, to register mismatches like the air-versus-vacuum slip and the matched-pair error — bookkeeping, not metaphysics. Third, the small world and the large world are shown to be one. The base length of the hydrogen spectrum is the Earth's crustal floor rescaled; the atom's blue-green line and the planet's year close on $18\pi^2$ together. The same T-field, the same {2,3,5,π} lattice, writes the address of an electron and the orbit of a world. Quantum mechanics was never a theory apart. It was the Force of Time, read very close up.

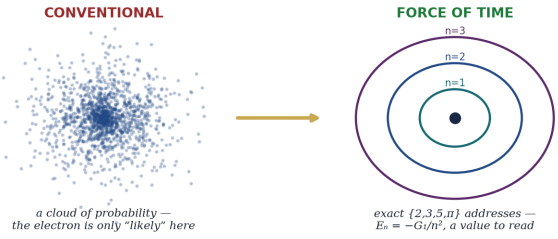

Figure 7. The change in one picture. The wave equation left the electron as a cloud of probability (left); the address law gives it exact {2,3,5,π} positions to read (right). Chance leaves the foundations — the smear was only a number we had not yet

learned to read.

Three replacements, at a glance

What the wave equation gave	What the address law gives
A differential equation to solve	A value to read: λ = 364.72338·(p/q)
A cloud of probability	Exact {2,3,5} addresses: $E_n = -G_1/n^2$
A small world set apart	One lattice — the atom's blue-green line and a planet's year close on $18\pi^2$ together

It is worth pausing on what has quietly happened here. For a century the atom was the place where certainty ended — where the best we could say was that an electron was probably here, probably there, a smear of chance no one could pin down. The wave equation worked so well that we stopped asking why its answers came out as they did. We accepted the smear as the nature of things. But the smear was never the world; it was the shadow of a number we had not yet learned to read.

Read it, and the atom turns crisp. The grip that holds the hydrogen electron is 13.6048896 eV, and that figure is built of nothing but twos and threes. The red light hydrogen throws when that grip relaxes is 656.502086 nanometres, and that length is exactly nine-fifths of a single base unit — the same base unit, rescaled, that measures the floor of the Earth's crust. The colour of a flame and the depth of the ground beneath your feet are two readings of one ruler. Nothing about that is metaphor. The numbers are exact, and they are the same numbers.

That is the real change the address law brings. Not a better way to compute the spectrum — the old equation computed it well enough — but a reason for the spectrum to be what it is. The electron sits where it sits because the Force of Time has an address for it, written in {2,3,5,π}, the same alphabet that spells out the orbit of a planet and the turn of a strand of DNA. The atom was never a separate, stranger country. It was the world we already know, seen very close up — and, at last, read rather than guessed.

Appendix A — The Quantum Catalog

Every value in the paper in one place. Each physical number leads; its lattice form follows. The hydrogen lines are exact {2,3,5} fractions of the Moho base unit; the grip G_1 is an exact pure-{2,3} number.

Quantity	Physical value	Lattice form	Note
H ionisation energy G_1	13.6048896 eV	$2^8 \times 3^{12} \times 10^{-7}$	EXACT (pure {2,3})
Energy level n	$E_n = -G_1/n^2$	$-2^8 \cdot 3^{12} \cdot 10^{-7} / n^2$	whole-number ladder
Base unit — Face C (top)	364.756261112416 nm	$3600 / \pi^2$	pure-lattice face
Base unit — Face A (bottom)	364.72338107955 nm	$(3600/\pi^2) \div (1+\delta_G)$	measurement-facing; stood by
Lyman-β (1←3)	102.578450929 nm	(9/32)·base_A	address
H-δ (2←6)	410.313803714 nm	(9/8)·base_A	address
H-β (2←4)	486.297841439 nm	(4/3)·base_A	address
H-α (2←3)	656.502085943 nm	(9/5)·base_A	address
Paschen (3←6)	1094.170143239 nm	3·base_A	address
Fine structure constant α	0.00729512522224832	$9 / (5^3 \cdot \pi^2)$	register bridge
Electron rest energy $m_e c^2$	511280.83701927186 eV	$2^9 \cdot 3^8 \cdot 5^6 \cdot \pi^4 \cdot 10^{-7}$	register value
Speed of light c_G1	299,789,233.68 m/s	$2^3 \cdot 3^5 \cdot 5^6 \cdot \pi^2$	register value
Electron speed α·c_G1	2,187,000 m/s	3^7 (km/s)	π^2 cancels, 0.0 ppm
Planck number h_FOT	$6.631455962 \times 10^{-34}$	$5^3 / (2 \cdot 3 \cdot \pi) \times 10^{-34}$	register value
Register step δ_G	90.1506 ppm	$5^{10}/(2^4 \cdot 3^9 \cdot \pi^3) - 1$	matched-pair cancels it
R_H above Face A	+49.48 ppm	R_H 10,967,758.34 / R_A 10,967,215.73	the named vacuum residual
Electron anomaly a_e	0.0011610552395952	$9 / (250 \cdot \pi^3)$	1209.9 ppm (the anomaly)
Helical register radius r	1.0046939300411524	$5^6 / (2^6 \cdot 3^5)$	engine for the mysteries
Air vs vacuum offset	~342 / +49.5 ppm	$\times n_{air} \approx 1.0002926$	rigid register slide

Appendix B — Propositions

P-QM-1 — The address law. Hydrogen's energy levels and spectral lines are read as {2,3,5,π} lattice addresses, not solved from the Schrödinger equation. Levels: $E_n = -G_1/n^2$. Lines: $\lambda = 364.72338 \cdot (p/q)$, p/q a {2,3,5} ratio.

P-QM-2 — The master identity. $G_1 = \frac{1}{2} m_e c^2 \cdot \alpha^2 = 13.6048896$ eV $= 2^8 \times 3^{12} \times 10^{-7}$ exactly. With $m_e c^2 = 2^9 \cdot 3^8 \cdot 5^6 \cdot \pi^4 \cdot 10^{-7}$ and $\alpha = 9/125\pi^2$, every factor of π and 5 cancels: the grip of hydrogen is a pure {2,3} number.

P-QM-3 — The Rydberg is not a constant — it is two faces of one seam. The atom's base unit is the Mohorovičić discontinuity rescaled: Face C (upper, pure-lattice) = $3600/\pi^2 = 364.756261112416$ nm; Face A (lower, measurement-facing, derived from the Moho floor at 6365.623858 km) = 364.72338107955 nm. The two sit one register step $\delta_G = 90.15$ ppm apart. The framework stands by Face A as the face closest to measurement.

P-QM-4 — Hydrogen lines as exact fractions of Face A. Lyman-β = (9/32)·base_A = 102.578450929 nm; H-δ = (9/8)·base_A = 410.313803714 nm; H-β = (4/3)·base_A = 486.297841439 nm; H-α = (9/5)·base_A = 656.502085943 nm; Paschen 3←6 = 3·base_A = 1094.170143239 nm. All exact, {2,3,5} only.

P-QM-5 — The matched-pair rule. Computing $\lambda = c \cdot h/\Delta E$ with energy and speed of light on the same register face cancels the $\delta_G = 90.1506$ ppm step exactly (verified to 1 part in 10^{10}); the wavelength and frequency are the invariants. Mismatching faces injects a spurious 90.15 ppm error.

P-QM-6 — Air versus vacuum, and the named residual. Catalogued lines are air wavelengths; the lattice is vacuum. The ~342 ppm offset against air collapses to a uniform +49.48 ppm slide against vacuum — and that +49.48 ppm is, to the part per million, the gap by which the conventional Rydberg R_H (10,967,758.34 m^{-1}) sits above Face A (R_A = 10,967,215.73 m^{-1}). The residual is a named register step, not an error.

P-QM-7 — Spin as half-turn. Half-integer spin $j = \frac{1}{2}$ is the two-pass return of a single helical T-node, not an added postulate.

P-QM-8 — Zero-point flow. The irreducible ground-state motion follows from $d\Sigma T = 0$: T never stops flowing, so a perfectly still state is forbidden.

P-QM-9 — Uncertainty as veil. Position and momentum are two register readings of one T-flow; the veil $180/\pi$ between registers sets the floor on simultaneous sharpness.

P-QM-10 — Electron anomaly. $a_e = 9/(250\pi^3) = 0.0011610552$, the anomaly itself (half of g−2), matching measurement to 1209.9 ppm. Earlier drafts mislabelled this as g−2; the correct label is a_e.

Open Questions

OQ-QM-1 — The vacuum residual is a uniform +49.48 ppm — identically the gap by which the conventional Rydberg R_H sits above Face A, so it is a named register step rather than scatter. Whether this +49.48 ppm is itself a simple {2,3,5,π} fraction of δ_G, or a re-pegging of the metre against c_G1, is open.

OQ-QM-2 — The n = 5 Balmer line (H-γ, 2←5) carries the factor 100/21 in the Rydberg ratio, whose 21 = 3×7 brings an apparent prime-7. Since the lattice is {2,3,5,π} only, the clean {2,3,5} address for this line is to be resolved by walking the 7 onto a node, as elsewhere; it is therefore omitted from the exact-fraction set above.

OQ-QM-3 — The electron anomaly a_e = 9/250π³ matches to 1209.9 ppm, beyond the veil. Whether a deeper lattice form lowers this residual is open.

Appendix C — The Conversion Loop: the gears between the faces

Every value in this paper is one T-value read in different units. Apply the fixed gear to move between any two faces and reproduce the step yourself; the loop closes on itself. The one interdimensional step is radial — mass ÷ 9375, then square.

Step (face → face)	Operator	Lattice
energy (eV) → energy (kJ)	÷ 10368	$2^7 \cdot 3^4$
energy (kJ) → wavelength λ	÷ 36	$2^2 \cdot 3^2$
wavelength λ → free fall g (T-flow)	÷ 49.50355350	3888 / 25π
free fall g → frequency f	× 6.283185307	2π
free fall g → energy (joules)	÷ 24	$2^3 \cdot 3$
wavelength λ → mass (λ-door)	× 1.233700550	$\pi^2 / 8$
energy (eV) → circumference C	÷ 31104	$2^7 \cdot 3^5$
circumference C → mass (circ-door)	÷ 22.00157933	1728 / 25π
free fall g → speed of light c	c = g^2 × 3,110,400	$864 \cdot 3600 = 2^9 \cdot 3^5 \cdot 5^2$

Direct laws (number-first): mass↔energy E = 6.822485557·m (m = 1.465741469·E); mass↔wavelength λ = $8m/\pi^2$ = 0.810569469·m; eV = 373248·λ ($2^9 \cdot 3^6$); mass→frequency f = 0.102880658·m (25/243).

A note on the numbers

Throughout this paper the physical number leads and the lattice form follows it. The grip of hydrogen is 13.6048896 eV; what it is made of is $2^8 \times 3^{12} \times 10^{-7}$. The red line is 656.502086 nm; its address is 9/5 of the Moho base unit. A T-value is one number worn across many registers — here the same arithmetic is at once an atom's grip, a spectral colour, and a planet's year — so the values are written bare, without being solved "to the power of" in a single dimension. The lines are exact; the only residual to measurement is a clean register step, and the physics is in the coherence, not in the apology.

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