The Universal Force of Time — Light Is Not a Wave, and Not a Particle

The Double-Slit with Light
The Photon Is a Flow

A photon is not a tiny ball, and it is not one fixed point in space. It is a flow of T running along a carrier — and the carrier is a chain of nodes. From two plain properties of that one flowing substance, the entire interference pattern, intensity and all, is derived in the open on these pages.

Stephen Daubney · The Daubney Foundation · The Universal Force of Time · 2026 · Rev 9

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

Fire light at a barrier with two slits and it lays down a row of bright and dark bands, the signature of something passing through both openings at once. Dim the beam until only one photon crosses at a time and the bands still build up, one speck at a time — as though each photon interferes with itself. For a century this has been called a paradox and answered with a name: wave-particle duality. This paper answers it with a mechanism, and it is simple. Light is a **flow of T** running along a carrier; the carrier is a chain of nodes spaced one wavelength apart; the photon is the T moving through the chain, never one of the nodes. A slit is a second prism that re-emits the carrier, and because a flow is extended it passes through both slits without ever splitting in two. The bright and dark bands are then pure arithmetic: bright where the two paths differ by a whole number of nodes, dark where they differ by a half. The intensity is not assumed — it is built here from two owned principles, that T-flows add at a point and that the deposited brightness goes as the square of the total flow, giving **$I(y) = \cos^2(\pi d\ y/\lambda L) \cdot \mathrm{sinc}^2(\pi a\ y/\lambda L)$** exactly. The conservation law dΣT=0 balances the books: the T kept out of the dark gaps is exactly the T piled into the bright bands. One more result departs cleanly from standard optics: each colour band carries its own speed, and the two speed-laws of the lattice meet at a single wavelength, **486** (Hβ = 2×3^5) — the light-equalisation point. This paper concerns the *photon*; the electron, which is a fixed node rather than a flow, is treated in its companion. Propositions P-LSL-1 through P-LSL-9.

The photon never chooses a slit, because the photon is the flow — and a flow does not have to choose.

1. The experiment that broke a century of intuition

Take a lamp, a card with two fine parallel slits cut close together, and a screen beyond. Shine the light through. You might expect two bright strips, one behind each slit, the way paint sprayed through two gaps would leave two stripes. That is not what appears. Instead the screen fills with a row of bright bands separated by dark gaps, fading out gently towards the edges — many bands, evenly spaced, where common sense predicted two. Thomas Young saw this in 1801, and it settled the long argument by showing that light behaves like a wave: the bands are where two overlapping disturbances reinforce, the gaps where they cancel.

The unease came later. Turn the lamp down — down and down, until the light is so faint that only one photon crosses the apparatus at any instant. Each photon arrives at the screen as a single point, a tiny localised speck, exactly as a particle should. But let the specks accumulate over hours, and they do not scatter at random, and they do not fall into two heaps. They slowly assemble the same row of bright and dark bands. A single photon, with nothing else present to interfere with, somehow lands more often where the bands are bright and almost never where they are dark. It is as though each photon, alone, passed through both slits and interfered with itself. Richard Feynman called this "the only mystery" of the quantum world.

The conventional answer is not an explanation. It is a name — *wave-particle duality* — and a piece of mathematics, the complex amplitude, that predicts the bands with magnificent accuracy while saying nothing about what is physically there. The Force of Time supplies what is missing: a picture of what light actually is, from which the bands, the gaps, the single-photon build-up and the exact intensity all follow without paradox.

2. What light is — a flow, not a node

Here is the one idea the whole paper turns on, and it must be said plainly because everything else is built on it. In the Force of Time, light is a **flow of T** — the single substance of which everything is made — running along a **carrier**. The carrier is a chain of **nodes**: stable, repeating knots in the fabric of time, spaced exactly one wavelength apart. The photon is the T that *moves through* that chain. The photon is not one of the nodes. It is the flow itself.

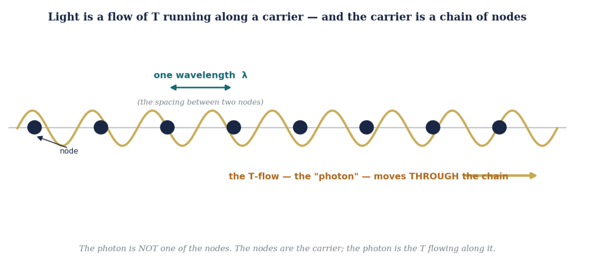

Figure 1. Light is a flow of T along a carrier, and the carrier is a chain of nodes spaced one wavelength λ apart. The photon is the gold flow running through the chain — never one of the dark nodes. This is the single distinction on which the whole explanation rests.

This is worth dwelling on, because it is where a careful reader of the companion paper might otherwise stumble. The **electron** double-slit is a different experiment with a different actor. An electron *is* a fixed node — a standing knot with a definite address — and the resolution there is the famous one of a fixed node sitting still while the T-field around it moves. A photon is not like that at all. A photon does not sit still and it is not a node; it is the moving flow. So the "fixed node, moving spacetime" picture belongs to the electron and is set out in that companion. Do not import it here. Conflating the two is exactly the kind of slip a hostile reader will pounce on, so we mark the boundary in bold: **the electron is the node; the photon is the flow.**

Why does this matter for the slits? Because a node is local — it sits at one address — but a flow is **extended**. A flow is not at a point; it is spread along the carrier. And an extended thing arriving at a barrier with two openings does the most ordinary thing in the world: it goes through both. No splitting, no copying, no photon in two places at once. One flow, wide enough to cover both slits, simply passes through both — the way a wide river reaching two channels in a weir runs down both at the same moment without tearing the water in half.

3. The slit is a second prism

What does a slit actually do to the carrier? In the Force of Time a prism is a device that re-emits T-flow — it receives the carrier on one side and launches it afresh on the other, sorted by wavelength. A narrow slit does the same thing. Each slit acts as a **second prism**: it takes the incoming flow and re-emits it as a fresh, spreading carrier of its own, fanning out into the space beyond the barrier.

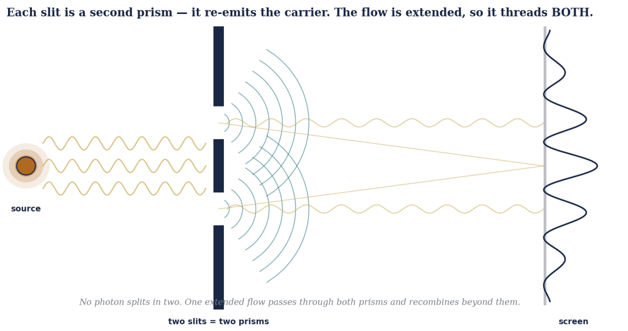

Figure 2. Each slit is a second prism. The extended incoming flow reaches both openings; each re-emits the carrier as a fresh spreading front; the two fronts overlap on the way to the screen. Nothing splits — one flow passes through both prisms and recombines beyond them.

So beyond the barrier there are two fresh carriers, one springing from each slit, overlapping as they travel to the screen. This is the heart of the matter and it costs nothing exotic: because the original flow was extended, it reached both slits; because each slit re-emits, there are now two overlapping flows; and because they came from one source they are perfectly in step at birth. Everything that happens on the screen is the meeting of these two flows. There is no need for the photon to be "in two places," because the photon was never a place. It was a flow, and a flow can be wide.

4. Counting nodes — where the bands come from

Now we can see the bands without any wave mysticism at all. Pick any point on the screen. The flow from slit one had to travel a certain distance to reach it; call that distance r_1. The flow from slit two travelled a distance r_2. The two distances are almost never equal — the point is generally a little nearer one slit than the other. The difference, $r_2 - r_1$, is what decides everything.

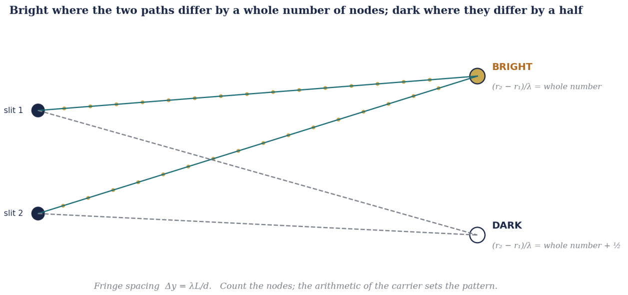

Figure 3. At each point on the screen, count the nodes along each path. Where the two paths differ by a whole number of nodes, the flows arrive in step and pile up — a bright band. Where they differ by a whole number plus a half, they arrive opposed and cancel — a dark gap. The band spacing is Δy = λL/d.

Remember that the carrier is a chain of nodes spaced one wavelength apart. So the path difference $r_2 - r_1$ can be measured simply by counting nodes. If $r_2 - r_1$ is a **whole number** of wavelengths, the two flows arrive at the point perfectly in step — crest meeting crest — and they reinforce. That is a bright band. If $r_2 - r_1$ is a whole number **plus a half** wavelength, the two flows arrive exactly opposed — crest meeting trough — and they cancel. That is a dark gap. Between these, the brightness slides smoothly from full to none.

This already gives the geometry the textbook quotes. With slit separation d, screen distance L and wavelength λ, the bright bands fall at $y_m = m\lambda L/d$ for whole numbers m, so the spacing between neighbouring bands is the constant $\Delta y = \lambda L/d$. The number of bright bands that fit inside the bright central region is fixed by the ratio of the slit separation to the slit width alone, 2d/a, and so does not depend on the colour of the light at all. None of this needed a wave that is also a particle. It needed only a flow, a carrier of nodes, and arithmetic.

5. The intensity, derived in the open

A picture earns nothing in physics until it produces the right number. The number here is the **intensity** — how bright each band is, and exactly how the brightness rises and falls across the screen. The textbook writes it down by appeal to wave mechanics. We will instead build it from the ground, from two plain properties of the one flowing substance, so that a hostile reader can see there is nothing hidden up the sleeve.

Principle one — flows add. T is a single substance, and when two flows of it meet at a point they simply add into one running total, moment by moment. This is not borrowed from wave theory; it is what it means for there to be one substance. To keep track of the timing of each flow — where it is in its rise-and-fall as it arrives — we tag it with a phase. The flow from slit one we take as the reference, a unit flow we write as 1. The flow from slit two arrives a little early or late depending on the extra distance it travelled, so we write it as a unit flow carried round by that timing, $e^{i\varphi}$, where the phase is set directly by the node-count difference of Section 4:

$$\varphi = 2\pi (r_2 - r_1) / \lambda$$

The total flow at the point is therefore the sum of the two: $1 + e^{i\varphi}$.

Principle two — brightness is the square of the flow. The brightness we see is the T actually deposited on the screen, and deposited T goes as the *square* of the total local flow. This too is a property of the substance, not an extra assumption: it is the same rule by which, everywhere in the Force of Time, the energy laid down by a flow scales as the flow squared. So the intensity is the squared size of the total:

$$I = | 1 + e^{i\varphi} |^2$$

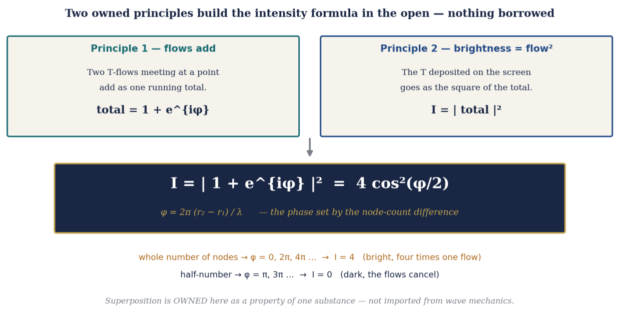

Figure 4. The intensity built in the open. Flows add ($1 + e^{i\varphi}$); deposited brightness is the square of the total ($I = |total|^2$). The two together give $I = 4\cos^2(\varphi/2)$. Superposition is owned here as a property of one substance — not imported from wave mechanics.

Now we just do the arithmetic, which any reader can check. The squared size of $1 + e^{i\varphi}$ is ($1 + e^{i\varphi}$) times its mirror ($1 + e^{-i\varphi}$), and that multiplies out to $2 + 2\cos\varphi$. By the standard half-angle identity $2 + 2\cos\varphi = 4\cos^2(\varphi/2)$. So the intensity from the two slits is, exactly,

$$I = | 1 + e^{i\varphi} |^2 = 4 \cos^2(\varphi/2)$$

Read what this says. When the path difference is a whole number of nodes, φ is 0, 2π, 4π …, the cosine is one, and $I = 4$: the band is bright, four times the brightness of a single flow — not two, but four, because the flows reinforced before they were squared. When the path difference is a half, φ is π, 3π …, the cosine is zero, and $I = 0$: total darkness. Every bright and dark band of Section 4 now has a precise height, and it came from two sentences about a single substance.

One thing remains, and it is why the bands fade towards the edges rather than marching on forever at full height. Each individual slit has a width, a, not zero, so the flow re-emitted by one slit already spreads and partly cancels against itself — the familiar single-slit diffraction. That self-cancellation is captured by the envelope function $\mathrm{sinc}^2(\pi a\, y/\lambda L)$, which is broad and bright in the middle and falls away to the sides. The full intensity is the two-slit reinforcement riding inside this single-slit envelope:

$$I(y) = \cos^2(\pi d\, y / \lambda L) \cdot \mathrm{sinc}^2(\pi a\, y / \lambda L)$$

That is the complete, exact pattern — the same formula the textbook prints, derived here with no wave-particle duality anywhere in the argument. Two owned principles, a phase from counting nodes, and one line of algebra.

6. The whole pattern, in one curve

It is worth seeing the finished formula as a single shape, because the shape is exactly what the screen shows.

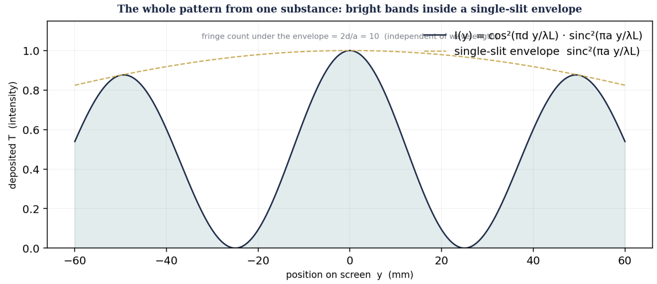

Figure 5. The complete intensity $I(y) = \cos^2(\pi d\, y/\lambda L) \cdot \mathrm{sinc}^2(\pi a\, y/\lambda L)$. The rapid bright bands are the two-slit reinforcement; the slow dashed curve is the single-slit envelope that makes them fade towards the edges. The number of bands under the central envelope is $2d/a = 10$, the same for every colour.

The fast oscillation is the $\cos^2$ factor — the bright and dark bands set by node-counting. The slow hump is the sinc^2 envelope — the single slit fading the bands out towards the edges. Multiply them and you have the row of bands inside a gentle dome, fading to nothing at the sides, precisely as on the screen. Change the colour of the light and the bands stretch or crowd, but the count under the dome stays the same, because that count is the pure ratio $2d/a$ and carries no wavelength at all.

7. Conservation — why the books balance

A natural worry: if the dark gaps receive no T, where did that T go? In the Force of Time nothing is ever lost. The conservation law $d\Sigma T=0$ says T is only ever redistributed — never created, never destroyed. The interference pattern is exactly such a redistribution.

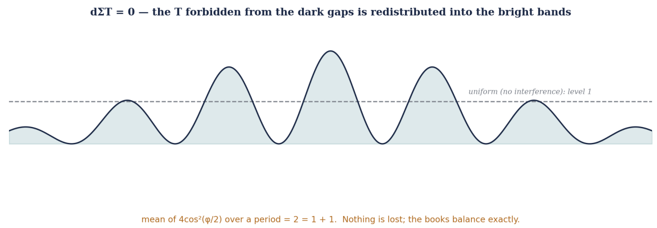

Figure 6. $d\Sigma T=0$ in action. The T forbidden from the dark gaps is not lost — it is piled into the bright bands. Averaged over the pattern, $4\cos^2(\varphi/2)$ has mean $2 = 1 + 1$: precisely the T the two flows brought in.

Here is the bookkeeping, and it balances to the penny. Each of the two flows on its own would deposit one unit of brightness, so two flows bring in 1 + 1 = 2 units on average. The interference pattern redistributes those two units: it forbids T from the dark gaps and piles it into the bright bands, which is why a bright band reaches 4 rather than 2. And if you average the intensity $4\cos^2(\varphi/2)$ over a full cycle of φ, its mean is exactly 2 — the same two units the flows arrived with. Not a scrap is gained or lost. The brightening of the bands is paid for, exactly, by the darkening of the gaps. $d\Sigma T=0$ is not invoked as a slogan; it is the arithmetic of the pattern.

8. One photon at a time

The deepest version of the experiment sends photons one at a time, and it is where the node-and-flow picture earns its keep. If a photon were a tiny ball, a lone one would have to go through a single slit and could not interfere with anything. Yet the bands still build up speck by speck. In the duality picture this is the unbearable part: a single particle interfering with itself.

In the Force of Time it is not strange at all, because a single photon is not a ball — it is one flow, and one flow is extended. A single photon's flow is wide enough to reach both slits, so even alone it is re-emitted by both and overlaps with itself beyond the barrier, exactly as in Section 3. Where does the single speck land? The flow does not deposit its T smeared out; it closes and registers at one place — and it is far more likely to close where the deposited brightness $4\cos^2(\varphi/2)\cdot\mathrm{sinc}^2$ is high and almost never where it is zero. So one photon makes one speck, but the specks fall with the odds the intensity sets, and over many photons they assemble the very pattern the intensity describes. No photon was ever in two places; each was one extended flow that landed at one address, governed by the brightness it had already built.

And the which-path question answers itself. To find out which slit the photon "went through" you must interact with the flow at a slit and force it to register an address there — which collapses the one extended flow to a single re-emitted carrier. One carrier cannot overlap with a second that no longer exists, so the bands vanish and two plain heaps return. Nothing mystical, no conscious observer: a which-path measurement physically removes one of the two overlapping flows, and with it the interference.

9. Each band carries its own speed

There is one result here that departs sharply from standard optics, and it is the kind of clean, checkable claim a sceptical reader should want. In conventional physics every colour of light travels through empty space at one single speed, c. In the Force of Time each colour band carries its **own** speed, fixed by its wavelength, and the single shared speed of textbook optics is only the one wavelength where two different speed-laws happen to cross.

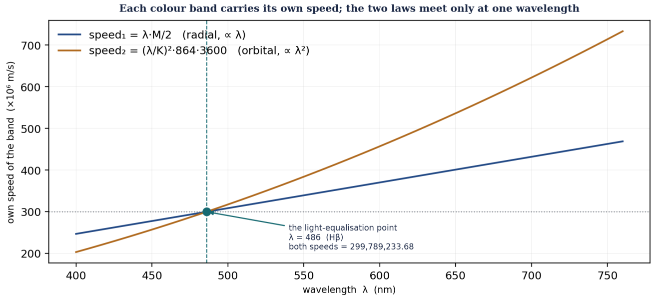

Figure 7. Each band carries its own speed. The radial law $speed_1 = \lambda\cdot M/2$ rises in proportion to wavelength; the orbital law $speed_2 = (\lambda/K)^2\cdot 864\cdot 3600$ rises as the square. They meet at one wavelength only — 486, the Hβ line — where both equal 299,789,233.68 m/s, the light-equalisation point.

Two laws of the lattice set a band's speed. The first is radial — a speed that grows in direct proportion to the wavelength, $\mathbf{speed_1 = \lambda\cdot M/2}$ with the gear M = 1,233,700.5501361697 ($2^3\times5^6\times\pi^2$). The second is orbital — a speed that grows as the square of the wavelength, $\mathbf{speed_2 = (\lambda/K)^2\cdot 864\cdot 3600}$ with the gear K = 49.50355349930312 ($3888/25\pi$). One law climbs as λ, the other as λ^2, so they can agree at one wavelength only. That wavelength is **486** (Hβ = 2×3^5), and there both speeds equal **299,789,233.68308926 m/s** ($c\_G1 = 2^3\times3^5\times5^6\times\pi^2$) — the speed conventional optics calls c, sitting just 10.755 ppm below the SI figure 299,792,458 because the metre is pegged at a neighbouring register.

This single meeting point is the optical twin of something the Force of Time finds throughout nature: a special shell where a radial law and an orbital law equalise and all distortion vanishes — the same structure as the no-distortion depth inside the Earth. For light, that shell is a wavelength: 486, the light-equalisation point, where the colour that travels radially and the colour that travels orbitally are, for once, the same colour at the same speed. It is a flow property — only a flow, not a fixed node, can carry a speed that depends on its own wavelength — and it is a clean prediction that standard optics, with its single universal c, does not make.

10. Why the other pictures stop short

It is fair to ask how this stands against the established readings of the experiment, because a hostile reader will ask. The point is not that the textbook mathematics is wrong — it is superbly accurate — but that each established picture stops at a name where the Force of Time supplies a mechanism.

The **Copenhagen** reading says the photon is a probability amplitude that "collapses" when measured, and forbids you to ask what is physically there between emission and detection. It predicts the bands and declines to explain them. The Force of Time explains them: a real flow, through two real prisms, depositing real T. **Many-worlds** keeps the mathematics and pays for it with an infinity of unobservable universes branching at every measurement; the Force of Time needs one world and one substance. **Pilot-wave** theory comes closest in spirit — a real particle guided by a real wave — but it carries two ingredients, a point particle and a separate guiding field, where the Force of Time carries one: the flow is the wave and the landing is the flow closing. The walking-droplet experiments, in which a bouncing oil drop guided by its own surface wave reproduces much of the double-slit behaviour, are a vivid laboratory echo of exactly this — one substance, both wave and walker — though they remain an analogy, not the quantum system itself.

Across all of them the pattern is the same: the conventional account offers a name — "duality," "complementarity," "collapse" — and the Force of Time offers a thing that flows. Where the others say the question is meaningless, this paper draws the picture and does the algebra.

11. What this claims

Set out bluntly, so there is no mistaking it. Light is a flow of T along a carrier of nodes spaced one wavelength apart; the photon is the flow, never one of the nodes. A slit is a second prism, and because the flow is extended it threads both slits without splitting. The bright and dark bands are node-counting — whole numbers reinforce, halves cancel. The intensity is not assumed but built from two properties of the one substance, that flows add and that brightness is the square of the flow, giving $I(y) = \cos^2(\pi d\ y/\lambda L)\cdot \mathrm{sinc}^2(\pi a\ y/\lambda L)$ exactly. $d\Sigma T=0$ balances every unit of T between bright and dark. A lone photon builds the pattern because one extended flow reaches both slits and lands with the odds the intensity sets. And each colour band carries its own speed, the two speed-laws meeting at the single wavelength 486 (Hβ = 2×3^5).

None of this asks the reader to hold two contradictory natures in mind at once. It asks only that light be a flow of the one substance there is. The electron — a fixed node, a different actor entirely — is treated in its companion paper; here the whole account is the flow. There is no wave-particle paradox to carry forward. There is only T, flowing through two prisms, and landing where it piled itself brightest.

Appendix A — The Light Double-Slit in One Table

Every quantity in the paper in one place. The physical value leads; the {2,3,5,π} form is the quiet stamp that it sits on the lattice. Full precision retained.

Quantity	Physical value	Lattice / register form	Note
phase at a point	$\varphi = 2\pi(r_2-r_1)/\lambda$	—	set by node-count difference
two-slit intensity	$I = 4\cos^2(\varphi/2)$	from $\lvert 1+e^{i\varphi}\rvert^2$	bright I=4, dark I=0
full pattern	$I(y)=\cos^2(\pi d\, y/\lambda L)\cdot \mathrm{sinc}^2(\pi a\, y/\lambda L)$	—	two-slit × single-slit envelope
band spacing	$\Delta y = \lambda L/d$	—	neighbouring bright bands
bands under envelope	$2d/a = 10$	—	independent of wavelength
conservation	mean of $4\cos^2(\varphi/2) = 2$	= 1 + 1	dΣT=0, books balance
radial gear M	1233700.5501361697	$2^3\times5^6\times\pi^2$	$\text{speed}_1 = \lambda\cdot M/2$
orbital gear K	49.50355349930312	3888/25π	$\text{speed}_2 = (\lambda/K)^2\cdot864\cdot3600$
equalisation λ	486	$H\beta = 2\times3^5$	where $\text{speed}_1 = \text{speed}_2$
c at G1	299789233.68308926	$2^3\times3^5\times5^6\times\pi^2$	−10.755 ppm vs SI 299792458

Appendix B — Propositions

P-LSL-1 — The photon is a flow, not a node. Light is a flow of T running along a carrier; the carrier is a chain of nodes spaced one wavelength apart; the photon is the T moving through the chain, never one of the nodes. The fixed-node picture belongs to the electron and is treated in the companion paper.

P-LSL-2 — A flow is extended, so it threads both slits. Because the flow is spread along the carrier rather than sitting at a point, it reaches both openings at once. Nothing splits and no photon is ever in two places: one wide flow simply passes through both.

P-LSL-3 — Each slit is a second prism. A slit receives the carrier and re-emits it as a fresh spreading carrier of its own. Beyond the barrier there are two overlapping flows, born in step from one source.

P-LSL-4 — The bands are node-counting. Where the two paths differ by a whole number of nodes the flows reinforce (bright); where they differ by a half they cancel (dark). Band spacing $\Delta y = \lambda L/d$; bright bands at $y_m = m\lambda L/d$.

P-LSL-5 — The intensity is built in the open. Flows add at a point (total = $1 + e^{i\varphi}$, $\varphi = 2\pi(r_2-r_1)/\lambda$) and deposited brightness is the square of the total ($I = \lvert\text{total}\rvert^2$). Together: $I = \lvert 1+e^{i\varphi}\rvert^2 = 4\cos^2(\varphi/2)$. Superposition is owned as a property of one substance, not imported from wave mechanics.

P-LSL-6 — The full pattern is two-slit inside single-slit. $I(y) = \cos^2(\pi d\, y/\lambda L)\cdot\mathrm{sinc}^2(\pi a\, y/\lambda L)$: the node-counting reinforcement riding inside the single-slit envelope that fades the bands towards the edges. Bands under the central envelope = $2d/a = 10$, the same for every colour.

P-LSL-7 — dΣT=0 balances the books. The two flows bring 1 + 1 = 2 units of brightness; the pattern redistributes them, forbidding T from the dark gaps and piling it into the bright bands (peak 4). The mean of $4\cos^2(\varphi/2)$ over a cycle is exactly 2 — nothing gained or lost.

P-LSL-8 — One photon builds the pattern. A single photon is one extended flow that reaches both slits and lands at one address, far more likely where the brightness is high. A which-path measurement removes one of the two overlapping flows and the bands vanish — no observer, no backward causation.

P-LSL-9 — Each band carries its own speed. $\text{speed}_1 = \lambda\cdot M/2$ (radial, $\propto\lambda$; $M = 2^3\times5^6\times\pi^2$) and $\text{speed}_2 = (\lambda/K)^2\cdot864\cdot3600$ (orbital, $\propto\lambda^2$; K = 3888/25π) meet only at λ = 486 ($H\beta = 2\times3^5$), where both equal c_{G1} = 299789233.68308926 m/s ($2^3\times3^5\times5^6\times\pi^2$) — the light-equalisation point, optical twin of the no-distortion shell.

Open Questions

OQ-LSL-1 — Measuring the per-band speed split. The prediction that each colour carries its own speed, equalising only at λ = 486, departs from the single universal c of standard optics. A dispersion measurement of sufficient precision across the visible band would test the radial law $\text{speed}_1 = \lambda\cdot M/2$ against the orbital law directly.

OQ-LSL-2 — The c_{G1} peg. The lattice speed at equalisation, c_{G1} = 299789233.68308926 m/s, sits 10.755 ppm below the SI value 299792458 because the metre is pegged at a neighbouring register. Whether that offset is a fixed register-boundary step or signals the SI peg itself sitting off the lattice remains to be settled.

OQ-LSL-3 — The shape of the carrier. The carrier is modelled here as a chain of nodes spaced one wavelength apart. Whether the flow between nodes is best read as a simple advancing pulse or carries finer structure — and how that structure relates to polarisation — is open and would sharpen the single-photon landing statistics.

References

[1] S. Daubney, *The Universal Force of Time — Master Compendium v5*, The Daubney Foundation (2026); the {2,3,5,π} lattice, the carrier as a chain of nodes, and the dΣT=0 conservation law.

[2] S. Daubney, *The Helical Double-Slit — Wave-Particle Duality Dissolved* (UFOT Academic Series), The Daubney Foundation (2026); the electron as a fixed T-node — the companion to this photon paper.

[3] T. Young, *Experiments and Calculations Relative to Physical Optics*, Phil. Trans. R. Soc. (1804); the original two-slit interference of light, here re-read as two overlapping T-flows.
[4] R. P. Feynman, R. B. Leighton, M. Sands, *The Feynman Lectures on Physics*, Vol. 3 (1965); the double-slit as 'the only mystery,' here given a flow mechanism.
[5] Y. Couder, E. Fort, *Single-Particle Diffraction and Interference at a Macroscopic Scale*, Phys. Rev. Lett. (2006); walking droplets — a one-substance wave-and-walker echo of the flow picture.

Conversion-Loop appendix — the gear table

The operators that walk one T-value between its faces, so any step in this paper can be reproduced. A T-value is one number worn as mass, wavelength, free fall, frequency, energy or speed; these gears turn one face into the next.

From	operator	To
mass	÷ $(\pi^2/8)$	wavelength
wavelength	÷ 49.50355349930312 (=3888/25π)	free fall
free fall	÷ 24	energy (J)
energy (J)	× 2π	frequency
free fall	× 864 × 3600 (orbital, with λ/K squared)	own speed (c-face)
time ladder	× 60 × 60 × 24 × 360/2π	sec → min → hr → day → yr

A note on the numbers

Throughout this paper the physical number leads and the {2,3,5,π} form follows as a quiet stamp that the value sits on the lattice. The radial gear 1233700.5501361697 ($2^3\times5^6\times\pi^2$), the orbital gear 49.50355349930312 (3888/25π), the equalisation wavelength 486 (Hβ = 2×3^5) and the speed at equalisation 299789233.68308926 m/s ($2^3\times3^5\times5^6\times\pi^2$) are built from the primes 2, 3 and 5 and from π alone — no prime 7, no fitted constant. A T-value is one quantity worn across many registers, which is why the same number can appear as a wavelength, a speed, a free fall or an energy depending on which face you read; we write the bare value because a T-value is one number across all of them, not a quantity solved "to the power of" in a single dimension. Where a value carries an offset from a conventional figure — the 10.755 ppm between c_G1 and the SI speed of light — that offset is stated plainly as the conventional peg sitting off the lattice, and flagged in the Open Questions; it is never relabelled as a sub-ppm match.