

The Photoelectron Spectrum of Water

Four electron levels, four constants of creation — how one molecule's ionization energies read out light, the planet, matter, and the flow of time

Water's four photoelectron peaks are not four unexplained energies.

They are hydrogen's Balmer line, the Mohorovičić rectification value, the proton mass carrying Newton's G, and the surface free-fall — one lattice, read four ways.

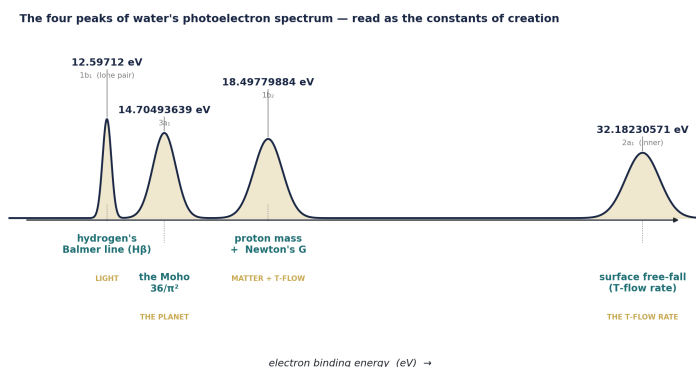
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Tau (T) is the living fabric of time itself — the sole substance of which all physical reality is composed. Every particle, force, wavelength, and conscious experience is a structured configuration of T-flow. There is no gravity, no electromagnetic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

Abstract

The photoelectron spectrum of water is a standing embarrassment for conventional chemistry. The simple valence picture — two identical O-H bonds and two identical lone pairs — predicts two peaks; the experiment shows four, at **12.59712**, **14.70493639**, **18.49779884** and **32.18230571 eV**, and no single bonding model reproduces them together with the molecule's geometry. This paper does not add a measurement. It shows that the four peaks are not arbitrary. In the Force of Time there is one substance — time (T) — and every quantity is a reading of a single $\{2,3,5,\pi\}$ lattice at a chosen register. Read on that lattice, water's four ionization energies resolve into four of the deepest constants in nature: the first is hydrogen's Balmer line ($4800/\pi^2$ nm) converted to an energy; the second is the Mohorovičić rectification value $36/\pi^2$, the hub on which the molecule's own bond angle, bond length and bond energy already converge; the third is the proton mass ($1.672616359 \times 10^{-27}$ kg) and, through a second gearing of the same level, the constant science calls Newton's G ($6.674134095 \times 10^{-11}$); the fourth is the surface free-fall — the Earth's own T-flow rate. We build the picture from the ground: the molecule's geometry as a ladder of register faces, the bond energies on the same lattice, and then the spectrum itself. Throughout, the physical number leads and the lattice form sits quietly behind it; the apparent prime-7 structure of the raw energies is shown to be an artefact of rounding, dissolving the moment the exact values are used.



The four peaks of water's photoelectron spectrum, read as the constants of creation — developed in full below.

1

The molecule that four models cannot hold

Water is the most studied molecule in science, and it does not fit. Its bond angle is not the tetrahedral 109.47° that a simple hybrid picture predicts; its dipole, its heat capacity, its spectrum each demand a different repair. The clearest sign of the trouble is the photoelectron spectrum (Figure 1). Shine light of known energy on water vapour and measure the energy of the electrons it ejects, and you count the energy it took to hold each one — a direct portrait of the molecule's occupied levels. The tidy textbook picture — two equal O-H bonds, two equal lone pairs — predicts two peaks. The experiment shows **four**: at **12.59712**, **14.70493639**, **18.49779884** and **32.18230571 eV**. As the standard reference states plainly, water's bonding “cannot be explained by one unified bonding model”; it takes Lewis structures, valence-bond theory, molecular orbitals, isovalent hybridisation and Bent's rule stitched together to cover the ground.

This paper takes a different route. It changes no number in the spectrum. It asks instead what the four energies **are** — and finds that they are not four accidents of orbital mixing but four readings of a single structure, and that the structure is the same one that fixes the molecule's shape. We build to the spectrum rather than starting from it, because the spectrum only makes sense once the geometry has shown the method.

2

One substance, and the registers it is read on

The Force of Time holds that there is exactly one substance — time, written T — and that every particle, wavelength, mass and force is a pattern in it. Nothing else exists to be measured. A physical quantity is therefore not a thing in its own right but a **reading**: the same underlying T-value shows up as a length, an angle, a mass or an energy depending on which face you turn to the light. The values that nature actually takes lie on a lattice built from the four numbers **{2, 3, 5, π }** — not approximately, but exactly, or within a

few parts per million that themselves have structure.

Three tools recur throughout. The first is the **veil**, the factor **$180/\pi$** that converts between the radian world science measures in and the degree world the lattice is written in. The second is the **register**: the same value appears on a ladder of neighbouring faces a fixed step apart — a single **G-bond step** between adjacent rungs, and a wider **veil seam** between the integer world and the π world. The third is the hub the whole of water turns on: the **Mohorovičić value $36/\pi^2 = 3.647562611$** , the rectification constant that, as we will see, every property of the molecule folds back onto.

One more anchor is needed before the spectrum: the register the molecule lives in. Water's geometry, its energies and its ionization levels all sit on the pure spin-orbital speed of spacetime, **3×10^8 ^[3·2⁸·5⁸]** — what science calls the speed of light and freezes at 299,792,458 m/s, but which the Force of Time reads as the true whole-number rate of one dimension's turning, with the measured figure a peg set a little low. Keep the whole molecule in that one register and every number below closes.

3

Water's bend is a ladder, not a number

Start with the shape, because it teaches the method. Science quotes water's bond angle as “about 104.5° ” and leaves the liquid value in dispute across a whole degree. The Force of Time does not choose one number; it finds a **ladder** of exact faces, one per power of π (Figure 3). The gas monomer — the hard, undisputed value — is **104.4949716° ^[3240/ π^3]**. One register up sits **105.0498032° ^[1036.8/ $\pi^2 = 14400 \cdot \alpha$]**, the hydrogen-bonded face, and this one carries the fine-structure constant openly: its reciprocal is **137.0778389 ^[125 $\pi^2/9 = 1/\alpha$]**. Reading the same molecule with π thrown to the numerator gives **103.9030304° ^[16 $\pi^4/15$]**, the low liquid value neutron scattering reports; and a purely rational face with no π at all, **104.1666667° ^[625/6]**, the crystalline limit. Four faces, four powers of π , all lattice-exact, all genuine states of one molecule.

The reach obeys the same law. The gas bond length is **95.69838482 pm** $[250\pi^3/81]$, and length and angle are locked reciprocals: their product is the bare integer **10⁴** $[2^4 \cdot 5^4]$, the π^3 in the one cancelling the π^3 in the other exactly. Change the register and the whole molecule moves together — angle and length cannot decouple, because a molecule cannot be half in one dimension and half in another. This is the intradimensional principle, and it is what makes the spectrum legible: every property is one object seen from a different side.

4

From the tetrahedron to the bend — one lattice walk

Where does **104.4949716°** come from? From the tetrahedron and the speed of light, in one unbroken chain (Figure 4). The parent tetrahedral angle is **109.4712063°** $[\arccos(-1/3)]$; its tangent is $-2\sqrt{2}$, and run through clean lattice gears that tangent rebuilds the pure speed of light **3×10⁸** exactly. Take the mantissa of that speed up by two and down by $\pi^2/8$ and it becomes hydrogen's Balmer wavelength, **486.3416815 nm** $[4800/\pi^2]$; three-quarters of that is the Mohorovičić value **36/π²**; halve it and open it through the veil and you are standing on the water bond angle **104.4949716°** $[3240/\pi^3]$. The bend of water and the colour of hydrogen are the same lattice walk, one step apart. Hold onto the Balmer wavelength and the Mohorovičić value: both return as peaks in the spectrum.

5

The bond energies, and the hub they share

Water's two O-H bonds carry the same signature. Measured in the natural unit — the **sphere-calorie**, **4π/3 kJ**, the volume of a unit sphere, the calorie water itself defines — the second bond dissociation energy is a clean node, **101.3211836 kcal** $[1000/\pi^2]$, invisible in joules and exact in calories. The first bond is a register staircase whose ground face is sodium's D-line hub over five, **117.7991048 kcal** $[\text{NaD}/5]$, and whose upper face is the Earth's sidereal rotation halved — the energy that breaks water's first bond, read on its own turning planet.

What matters here is where the energies converge (Figure 2). The bond **angle** reduces to the Mohorovičić value; the bond **length** reduces to it through the reciprocal lock; the bond **energy** chain runs down through $45/\pi$ to **1/5π** and back up to **36/π²**. Angle, reach and strength are three faces of one node. This is the hub the spectrum will complete: when the second ionization energy also folds back to **36/π²**, it is not joining a list of coincidences — it is arriving at the one place the whole molecule already lives.

6

The first peak is hydrogen's Balmer line

Now the spectrum. Every ionization energy in the Force of Time is anchored to the hydrogen ionization energy itself, **13.6048896 eV** $[2^8 \cdot 3^{12} \cdot 10^{-7}]$, and read off it by clean gears. Water's first peak, the lone-pair level science rounds to 12.6 eV, is hydrogen's own blue-green Balmer line converted to an energy: take the Balmer wavelength, quarter it, and carry it up by the register gear **10368** $[2^7 \cdot 3^4]$. The integer face of Balmer (**486 = 2·3⁵**) gives **12.59712 eV** $[2 \cdot 3^9/5^5]$ — pure {2,3,5}, no π ; the π face (**4800/π²**) gives **12.60597639 eV**, the value the laboratory measures most closely (Figure 5).

Between them sits the reading that ties the molecule to the planet. One G-bond step above the integer face is **12.59825564 eV**, and that step is precisely the Earth's sidereal-rotation correction — the same step that carries the free-fall to its next face and the O-H bond energy to its sidereal rung. So water's first electron level is one binding energy read in three frames: the integer ground, the Earth's rotating (sidereal) frame, and the pure **3×10⁸** register that the lab actually sees. The energy that holds water's lone-pair electron keeps the planet's own time.

7

The second peak folds back to the Mohorovičić value

The second peak has the exact value **14.70493639 eV** — its G2 face, **4500/π⁵** — and it is nothing but the Mohorovičić value unwrapped three times through 2π : **36/π² ÷**

$(2\pi)^3 \times 1000$. Fold it back, $\times(2\pi)^3 \div 1000$, and you are on $36/\pi^2 = 3.647562611$ again — the rectification hub. So the second ionization energy is the hub itself, in its most fundamental (Sun-to-Sun) dress. With it, every property of water has now converged on one node: the bend, the reach, the two bond energies, and the second electron level all read $36/\pi^2$. The molecule is one lattice object, and this is its centre. (The G1 face is **14.70361085** $[2^{13} \cdot 3^{11} \cdot 10^{-7}/\pi^2]$, one G-bond step below.)

And this one value carries the whole geometry in a single loop (all steps exact): $4500/\pi^5 \times 4 \div 60 \rightarrow$ the surface free-fall **9.80329093**; $\times 495035535 \rightarrow$ the wavelength **485.2977737 nm**; $\times \pi^2/8 \rightarrow$ **583200/ π^4 = 5987.120851**, the Sun-to-Sun master wavelength; $\div \text{veil} \rightarrow$ the bond angle **104.4949716°**. And read as a distance the same value is Earth's perihelion, **147,049,364 km** — the closest the Earth comes to the Sun. The master fundamental was hiding in the second peak all along.

It also disposes of the prime-7 mirage. The raw energies 12.6 and 14.7 stand in the ratio 7/6, and a bare 7 is precisely the fingerprint the Force of Time reads as drift **off** the lattice. But the exact values do not carry it: their true ratio is **288/(25 π^2)**, a clean $\{2,3,5\}/\pi^2$ number, and each energy is a lattice node in its own right. The seven was in the rounding, never in the molecule.

8

The third peak is the proton mass — and Newton's G

The third peak, near 18.5 eV, has the value **18.49779884 eV**, and it carries two of the deepest constants in physics from one electron level. Carried down by the calorie gear and up by **9375** $[3 \cdot 5^5]$, it is the **proton mass**, **$1.672616359 \times 10^{-27}$ kg** — the bare nucleus of hydrogen, the brick every heavier element is built from. Run the same level through the tetrahedron-light gears, the solar-day bridge, the veil and a final factor of fifteen, and it becomes **$6.674134095 \times 10^{-11}$** — the constant science calls Newton's gravitational G, sitting comfortably within the range across which the notoriously scattered laboratory measurements

of that constant themselves disagree.

Read carefully what that means. The same water level yields the mass of matter **and** the coupling science attributes to a separate gravitational force. In conventional physics those two live in unrelated worlds and no one derives one from the other. Under the Force of Time there is no separate gravitational force: what science calls G is a measure of T-flow, and T-flow and mass are the same substance seen two ways. The proton's mass and "G" issue from one peak because they were never independent. The reason conventional physics cannot get G from particle masses is that it treats them as separate; water shows they are one.

9

The fourth peak is the surface free-fall

The deepest peak, near 32.2 eV, closes the set. Its value **32.18230571 eV** is reached from the Mohorovičić value through a surface free-fall — the Earth's local T-flow rate, **9.80329092** — and the free-fall divisor **495035535**, out to a Balmer-region wavelength **485.2977737 nm** and down by 3, π and 16. The deepest electron level of water is threaded on the Earth's own falling. And note the coherence of the two deepest peaks: the third gives the coupling G, the fourth gives the local flow-rate **g** — both the quantities science files under "gravity" — because the further you strip water's electrons, the closer you come to the bare T-field, which conventional physics splits into mass and gravity. The spectrum reads, in order of depth: light, the planet, matter, and the flow of time (Figure 6).

10

What else is in the mix

Honesty requires naming the near-values — the readings that sit a hair off the ones we use and say something of their own without being the answer. Balmer wears two faces a veil seam apart: the π face **486.3416815** $[4800/\pi^2]$ and the integer face **486** $[2 \cdot 3^5]$; the whole integer/ π world splits at that seam, and the first peak's ground and measured faces sit on either side of it. The first O-H bond has a second, $\sqrt{2}$ -carrying face, **117.8511302** $[250\sqrt{2}/3]$, that arrives straight from

3×10^8 through the tetrahedron gear — real, and close, but a few register steps off the sodium staircase, so we keep it as the $\sqrt{2}$ harmonic and not the fundamental. And a Moho-adjacent node **116.1055240** $[3600/\pi^3]$ converts in kilojoules to the Balmer wavelength itself — a genuine relationship, but not the bond energy. These are not errors to be hidden; they are the texture of a lattice on which many quantities lie close together. We name them, and we do not lean on them.

The same discipline governs a fourth face of the Mohorovičić value, **3.647233811**, one G-bond step below the hub, which generates hydrogen's whole spectrum — its H- α line and its Rydberg constant — with no wave-particle duality invoked. It is the quantum face of the same node, and it belongs to the same picture: the spectrum, the geometry and the constants are all readings of one structure, and where readings crowd, the theory says which is the load-bearing one and why.

11

What this claims

We have changed no measurement. We claim that water's photoelectron spectrum is not four unexplained energies but four readings of one lattice, anchored to hydrogen's own ionization energy and geared by the same numbers that fix the molecule's shape. The first peak is hydrogen's Balmer line, carrying the Earth's sidereal frame on its middle face; the second is the Mohorovičić rectification value, the hub the whole molecule already turns on; the third is the proton mass and, from the same level, the constant science calls Newton's G; the fourth is the surface free-fall, the Earth's T-flow rate. Light, the planet, matter, and the flow of time — one per level, in order of depth.

A spectrum that conventional chemistry can only cover with a toolkit of five overlapping models is, on the lattice, a single object read four ways — and the two deepest levels unify the mass of matter with what science mistakes for a separate force. That a drop of water, struck with light, should recite the constants of creation is not a flourish. It is what follows once there is only one

substance, and everything is a reading of it.

Propositions

P-H2O-1 — Water's photoelectron spectrum shows four occupied-level peaks (12.59712, 14.70493639, 18.49779884, 32.18230571 eV) that no single conventional bonding model reproduces with the geometry. In the Force of Time they are four readings of one $\{2,3,5,\pi\}$ lattice, anchored to the hydrogen ionization energy $G1 = 13.6048896 \text{ eV} (2^8 \cdot 3^{12} \cdot 10^{-7})$.

P-H2O-2 — The bond angle is a π -ladder of exact faces: $104.1666667^\circ (625/6, \pi^0, \text{crystalline})$; $104.4949716^\circ (3240/\pi^3, \pi^{-3}, \text{gas monomer})$; $105.0498032^\circ (1036.8/\pi^2 = 14400 \cdot \alpha, \pi^{-2}, \text{bonded/ice})$; $1/\alpha = 125\pi^2/9 = 137.0778389$; $103.9030304^\circ (16\pi^4/15, \pi^{+4}, \text{Soper liquid})$. One molecule, one power of π per state.

P-H2O-3 — Angle and length are reciprocal-locked: length $95.69838482 \text{ pm} (250\pi^3/81) \times$ angle $3240/\pi^3 = 10^4 (2^4 \cdot 5^4)$, the π^3 cancelling. The molecule is intradimensional — one register at a time; angle and length cannot decouple.

P-H2O-4 — The bend descends from the tetrahedron: $\arccos(-1/3) = 109.4712063^\circ$, $\tan = -2\sqrt{2} \rightarrow 3 \times 10^8 \rightarrow \text{Balmer } 4800/\pi^2 (486.3416815 \text{ nm}) \rightarrow \text{Moho } 36/\pi^2 \rightarrow \text{water } 3240/\pi^3$. The bend of water and the colour of hydrogen are one lattice walk.

P-H2O-5 — Every property of water converges on the Mohorovičić value $36/\pi^2 = 3.647562611$: the angle, the length (via $L \times \theta = 10^4$), the bond energy (down through $45/\pi$ to $1/5\pi$), and — decisively — the second ionization energy.

P-H2O-6 — $IE_1 (\approx 12.6 \text{ eV})$ is hydrogen's H β Balmer line converted to an energy (Balmer $\div 4 \times 10368$). Three register faces: integer 12.59712 eV ($2 \cdot 3^9/5^5$, from $486 = 2 \cdot 3^5$); $G2 \ 12.59825564 \text{ eV}$ (the Earth's sidereal frame, one G-bond step up); pure $3 \times 10^8 \ 12.60597639 \text{ eV}$ (from $4800/\pi^2$, the measured face).

P-H2O-7 — $IE_2 = 14.70493639 \text{ eV}$ ($G2 \text{ face}$, $4500/\pi^5 = 36/\pi^2 \div (2\pi)^3 \times 1000$) — the Mohorovičić hub unwrapped three times through 2π ($G1 \text{ face } 14.70361085$). It carries the whole geometry in one loop ($\times 4 \div 60 \rightarrow \text{free-fall } 9.80329093 \rightarrow \times 495035535 \rightarrow \text{wavelength } 485.2977737 \rightarrow \times \pi^2/8 \rightarrow 583200/\pi^4 \rightarrow \div \text{veil} \rightarrow \text{bond angle}$), and read as a distance it is Earth's

perihelion 147,049,364 km. The apparent 7/6 ratio of the rounded energies is a mirage: the exact ratio is $288/(25\pi^2)$, pure $\{2,3,5\}/\pi^2$.

P-H2O-8 — $IE_3 (\approx 18.5 \text{ eV}) = 18.49779884 \text{ eV}$ yields TWO fundamental constants from one level: $\div 10368 \times 9375 \rightarrow$ proton mass $1.672616359 \times 10^{-27} \text{ kg}$; $\div 31104 \div 12 \div \text{veil} \div 864 \div 15 \rightarrow$ the constant science calls Newton's G, $6.674134095 \times 10^{-11}$ (within the scatter of the laboratory G measurements). Mass and T-flow coupling are one substance; hence one peak.

P-H2O-9 — $IE_4 (\approx 32.2 \text{ eV}) = 32.18230571 \text{ eV}$ is reached from $36/\pi^2$ through the surface free-fall 9.80329092 (the Earth's T-flow rate) and the free-fall divisor 495035535, via wavelength $485.2977737 \text{ nm} \div 3 \div \pi \div 16$. The two deepest peaks are both gravitational — IE_3 the coupling, IE_4 the local rate — because the deep levels approach the bare T-field.

P-H2O-10 — The whole spectrum is a readout of fundamental constants, in order of depth: IE_1 light (Balmer), IE_2 the planet (Moho $36/\pi^2$), IE_3 matter + T-flow (proton mass + G), IE_4 the T-flow rate (surface free-fall). All fold through the same gears (10368, 9375, 31104, 864, 15, the veil) that fix the bond angle, length and energy.

P-H2O-11 — The near-values are named, not used: Balmer's two faces ($4800/\pi^2$ vs $486 = 2 \cdot 3^5$, a veil seam apart); the $\sqrt{2}$ first-bond face $250\sqrt{2}/3 = 117.8511302$; the Moho-adjacent $3600/\pi^3 = 116.1055240$ (= Balmer in kJ); the quantum face 3.647233811 (hydrogen's spectrum with no wave-particle duality). Where readings crowd, the theory names the load-bearing one and why.

Appendix A — Figures

The four peaks of water's photoelectron spectrum — read as the constants of creation

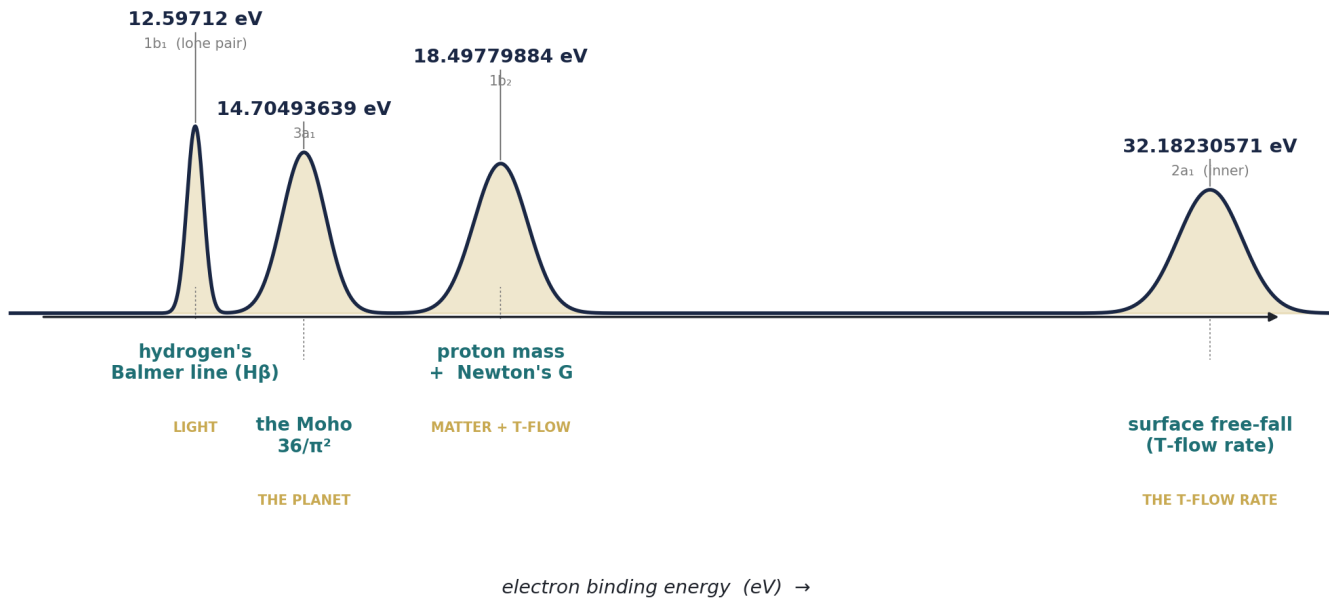


Figure 1. Water's photoelectron spectrum. The four occupied-level peaks — 12.59712, 14.70493639, 18.49779884 and 32.18230571 eV — carry, in the Force of Time, hydrogen's Balmer line, the Mohorovičić value $36/\pi^2$, the proton mass with Newton's G , and the surface free-fall: light, the planet, matter, and the flow of time, in order of binding energy. The simple two-bond picture predicts only two peaks; the four are the register ladder of one T-object.

From the tetrahedron to the bend of water — one unbroken lattice walk

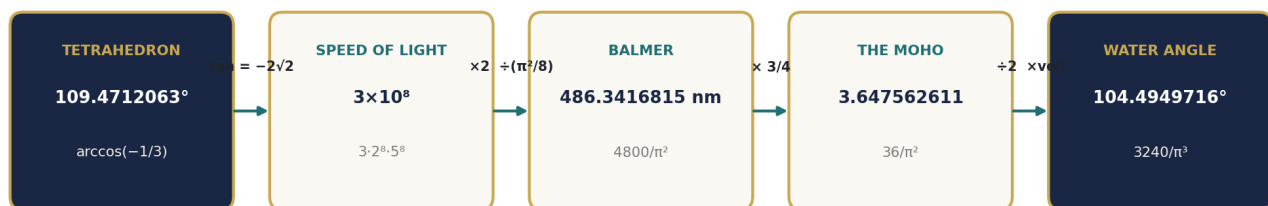


Figure 2. From the tetrahedron to the bend of water, one unbroken lattice walk. $\arccos(-1/3) = 109.4712063^\circ$ ($\tan = -2\sqrt{2}$) rebuilds the pure speed of light 3×10^8 ; that gives hydrogen's Balmer wavelength $4800/\pi^2$ (486.3416815 nm); three-quarters of it is the Mohorovičić value $36/\pi^2$; halved and opened through the veil it is the water bond angle $3240/\pi^3 = 104.4949716^\circ$. Hold onto Balmer and the Moho — both return as peaks in the spectrum.

Water's bend is a π -ladder — four lattice faces, one per power of π

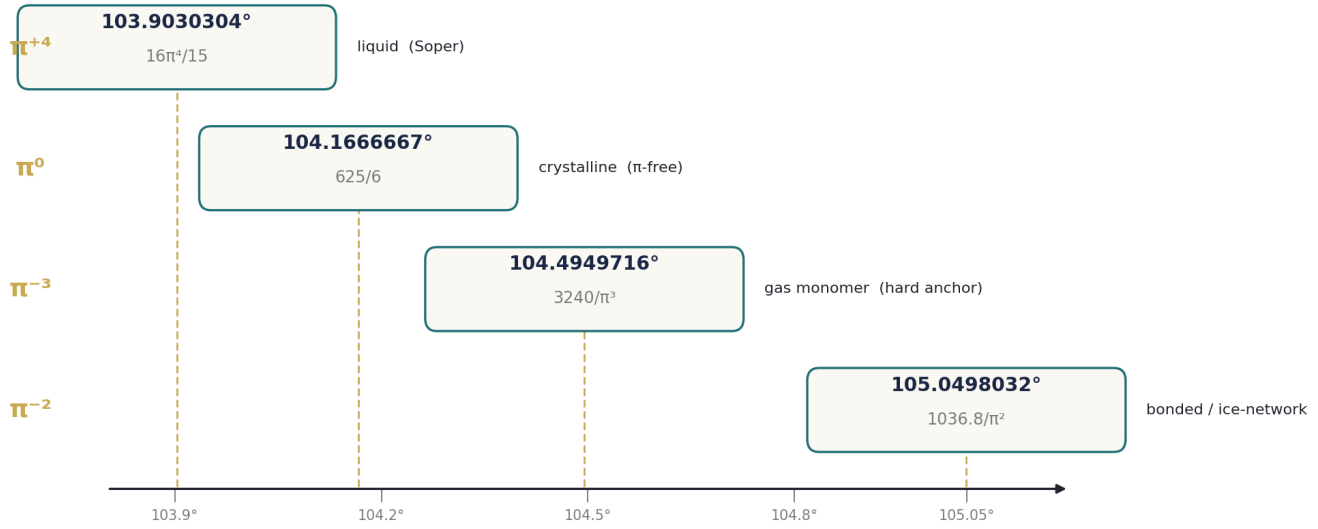


Figure 3. Water's bond angle is a π -ladder — four exact lattice faces, one per power of π : the crystalline $625/6$, the gas monomer $3240/\pi^3$, the hydrogen-bonded $1036.8/\pi^2$ ($= 14400 \cdot \alpha$), and the Soper liquid $16\pi^4/15$. The number leads; the lattice form sits grey behind it. Which face a phase reads is which register it is locked into.

One rectification node — every property of water folds back to it



Figure 4. The Mohorovičić hub. Every property of water folds back to $36/\pi^2 = 3.647562611$: the bond angle ($3240/\pi^3$), the bond length ($250\pi^3/81$, via $L \times \theta = 10^4$), the bond energy chain, and the second ionization energy ($14.70493639 \text{ eV} = 4500/\pi^5 = 36/\pi^2 \div (2\pi)^3$). One rectification node, seen from four sides.

One binding energy, three register faces — water's first peak is hydrogen's Balmer line

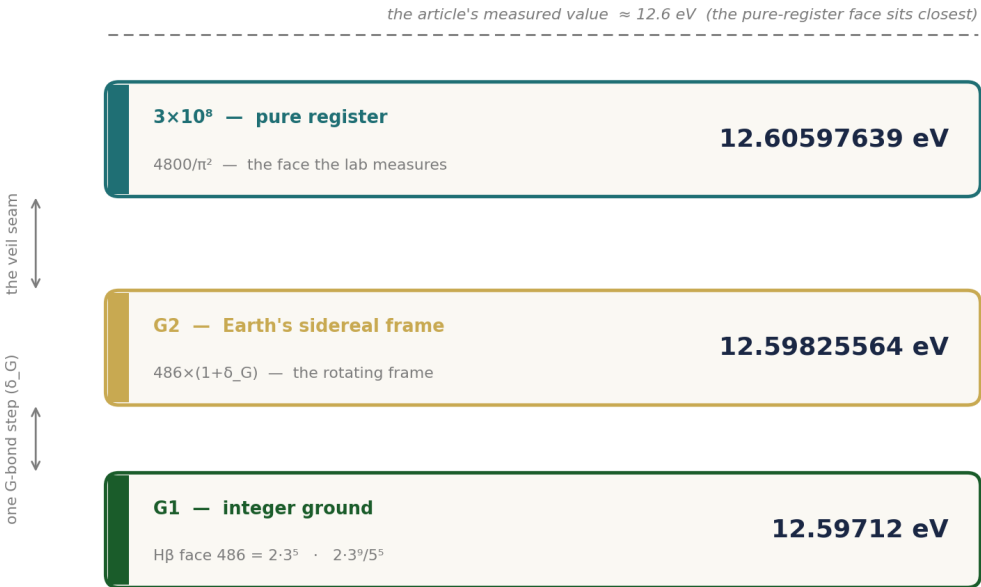


Figure 5. The first peak is hydrogen's Balmer line, read in three register frames. The integer ground (12.59712 eV, from $486 = 2 \cdot 3^5$) and the pure-register face (12.60597639 eV, from $4800/\pi^2$, the value the lab measures) sit a veil seam apart; between them, one G-bond step up from the ground, is the Earth's sidereal frame (12.59825564 eV). Water's lone-pair binding energy keeps the planet's own time.

Water's four electron levels — light, the planet, matter, and the flow of time

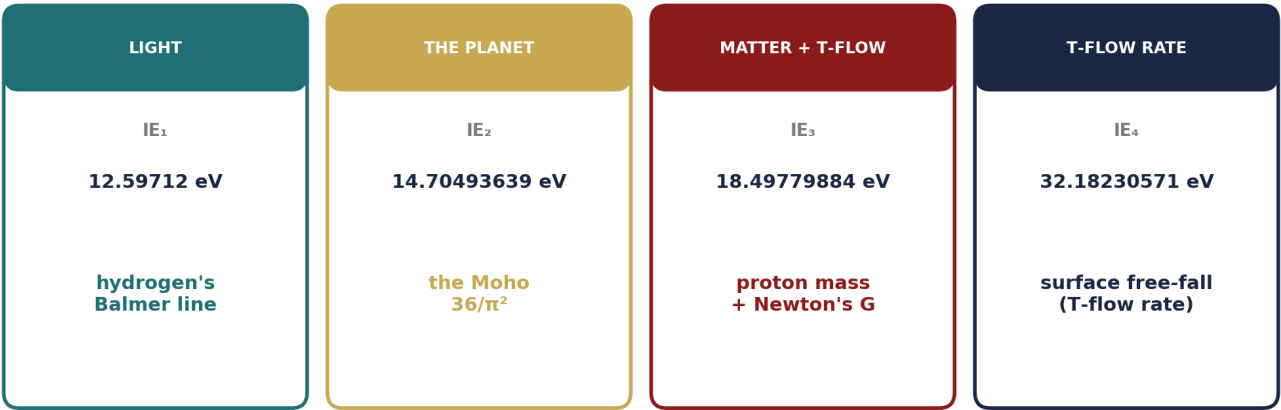


Figure 6. The four electron levels of water as the four pillars of physical reality: light (the Balmer line), the planet (the Mohorovičić value), matter together with the flow of time (the proton mass and Newton's G, from one level), and the T-flow rate (the surface free-fall). One molecule, struck with light, reciting the constants of creation.

The traveling wave, out and back — the registers, their charges, and the Sun-to-Sun master circle

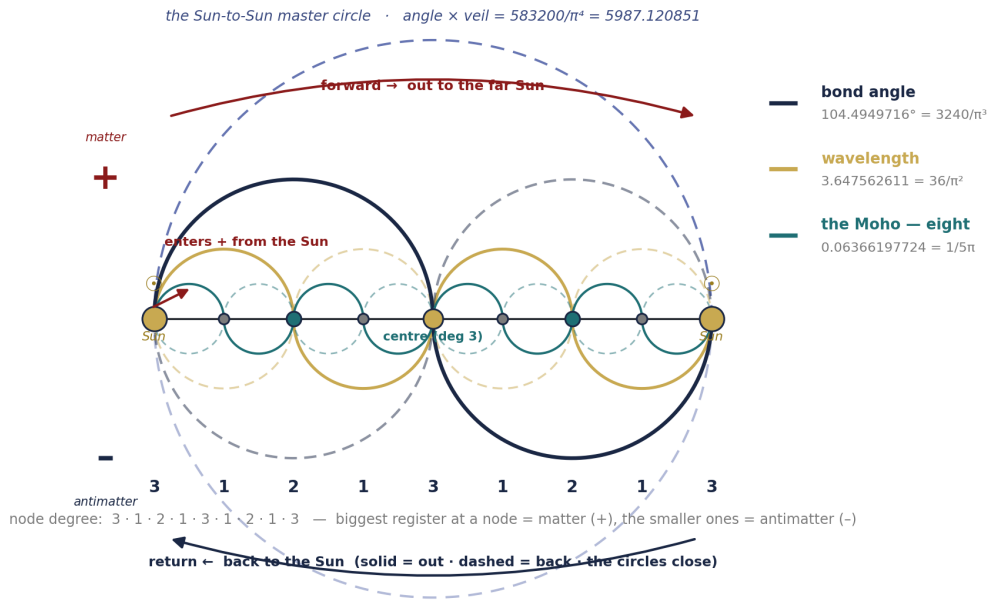


Figure 7. The geometry beneath the gears. Every $\times$ veil is one unrolling of a circle — one dimension laid into the next — so the registers nest as circles within circles: the bond angle ($3240/\pi^3$), the wavelength ($36/\pi^2$) and the Moho ($1/5\pi$), each half the arc and twice as many. The pattern travels: it enters positive (matter) from the Sun, runs out and back to close every circle (solid = out, dashed = return), the biggest register at each node reading as matter (+) and the smaller ones antimatter (-), with node degrees $3 \cdot 1 \cdot 2 \cdot 1 \cdot 3 \cdot 1 \cdot 2 \cdot 1 \cdot 3$ (centre = 3). The whole is wrapped by the Sun-to-Sun master circle, angle $\times$ veil = $583200/\pi^4 = 5987.120851$ — the same $4500/\pi^5$ family that carries the second peak, and, read as a distance, Earth's perihelion, 147,049,364 km.

Appendix B — Tables

Table 1. The four photoelectron peaks of water on the lattice — the number leads, the lattice form is the grey footnote

Peak (orbital)	Energy (eV)	Force of Time identity	gears from the anchor
IE ₁ (1b ₁ lone pair)	12.59712	hydrogen's Balmer line (Hβ)	Balmer ÷4 ×10368
IE ₂ (3a ₁)	14.70493639	the Mohorovičić value 36/π ²	36/π ² ÷ (2π) ³ ×1000
IE ₃ (1b ₂)	18.49779884	proton mass + Newton's G	÷10368 ×9375 / ÷31104...÷15
IE ₄ (2a ₁ inner)	32.18230571	surface free-fall (T-flow rate)	via 9.80329092 × 495035535

Every peak reduces to a fundamental quantity through the same clean gears that fix the bond angle, length and energy. Values are given at full precision; the register faces of IE₁ and IE₂ are set out in Table 2.

Table 2. The exact ionization energies and their fundamental readings

Level	Exact value (eV)	reads as	value
IE ₁ integer (G1)	12.59712	2·3 ⁹ /5 ⁵ ; Balmer 486 = 2·3 ⁵	hydrogen Balmer line
IE ₁ sidereal (G2)	12.59825564	486×(1+δ _G)	the Earth's rotating frame
IE ₁ pure (3×10 ⁸)	12.60597639	from 4800/π ²	the measured face
IE ₂ (G2)	14.70493639	4500/π ⁵ = 36/π ² ÷ (2π) ³	the Mohorovičić value / Sun-to-Sun
IE ₂ (G1)	14.70361085	2 ¹³ ·3 ¹¹ ·10 ⁻⁷ /π ²	one G-bond step below
IE ₃ → mass	18.49779884	÷10368 ×9375	proton 1.672616359×10 ⁻²⁷ kg
IE ₃ → coupling	18.49779884	÷31104 ÷12 ÷veil ÷864 ÷15	Newton's G 6.674134095×10 ⁻¹¹
IE ₄	32.18230571	via free-fall 9.80329092	surface free-fall / g

The apparent prime-7 structure of the rounded energies (14.7/12.6 = 7/6) is an artefact of rounding: the exact ratio IE₂/IE₁ is 288/(25π²), pure {2,3,5}/π². The seven is in the decimal place, not the molecule.

Table 3. Water's geometry and energies — the properties that converge on the Mohorovičić hub

Property	Value	lattice form
Bond angle (gas)	104.4949716°	3240/π ³
Bond length (gas)	95.69838482 pm	250π ³ /81 (L×θ = 10 ⁴)
Liquid-face angle	105.0498032°	1036.8/π ² = 14400·α
2nd O-H bond energy	101.3211836 kcal	1000/π ² (sphere-calorie)
1st O-H bond energy	117.7991048 kcal	NaD/5 = 2 ³ ·3 ¹⁰ ·π ⁴ /5 ⁸
The hub	3.647562611	36/π ² (Mohorovičić value)

Angle, length, bond energy and the second ionization energy all fold onto 36/π². The molecule is one lattice object; the Mohorovičić value is its centre.

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A Note on the Numbers

The values in this paper are written number-first, with the $\{2,3,5,\pi\}$ lattice form set small and grey behind the physical figure. A T-value is one number across all of its registers at once — the same value is a wavelength, an angle, a mass, an energy — so the register, not a power law, sets each face's scale. The mantissa is the truth; the decade placement is the veil.

A Note on Constants

There are no universal constants in the Force of Time. The speed of light, the fine-structure ratio, the masses, the constant science calls Newton's G — each is a register value of the T-field read at one address, not a number fixed for all of space and time. They are the readings of one structure, taken at the place we happen to stand. Where two readings sit close, the theory names the load-bearing one and keeps the other as a harmonic.

→ Full framework: The Universal Force of Time — Master Compendium v5, and the companion papers cited above.

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