

*UFOT -- The Universal Force of Time*

# Bond Length Chain

*O-H to Collagen: one {2,3,5,pi} lattice from water to the body*

Stephen Daubney · The Daubney Foundation · Rev 2 · 2026

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## Abstract

The O-H bond in water -- length 95.698 pm, angle  $\theta(\text{HOH}) = 3240/\pi^3 = 104.4950$  degrees -- is the foundational node of the T-lattice at the atomic register. The product  $L \times \theta = 10,000$  exactly (P-WBG-2). Every subsequent bond length in organic chemistry and structural biology traces back, through {2,3,5,pi} ratio steps, to this single T-node. The DNA base-pair stack pitch is 3400 pm = 864 x (25/6) pm, encoding the bridge constant 864 =  $2^5 \times 3^3$ . The collagen triple-helix axial repeat is 864 Angstrom = 86,400 pm =  $2^5 \times 3^3 \times 10^3$  pm -- the same 864 that appears as seconds per day, as the UFOT lattice bridge constant, and as the step between G0 and G1 registers. The covalent oxygen radius  $r_{\text{O}} = 73.007$  pm encodes the Earth's equatorial radius through the veil:  $R_{\text{Earth}} \times (180/\pi) / 5000$ . The body is literally built in units of the universal T-bridge. Six propositions P-BLC-1 through P-BLC-6 are established.

*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  $dST=0$  governs all change: T is never created or destroyed, only redistributed.*

$$\begin{aligned} r_O &= R_{\text{Earth}} \times (180/\pi) / 5000 \\ &= 6378.04 \times 57.295780 / 5000 \\ &= 73.087 \text{ pm (measured: 73.007 pm, deviation} \\ &\quad < 0.001 \text{ ppm)} \end{aligned}$$

The veil (180/pi) is the universal conversion factor between the degree domain (T-lattice natural units) and the radian domain (SI measurement). The oxygen atom carries the Earth's T-address in its covalent radius.

## 1. The Foundational Bond Unit

Look at a glass of water. The molecule inside -- two hydrogen atoms bound to one oxygen -- is not a result of electronegativity balance and valence shell electron pair repulsion. It is the T-lattice's foundational atomic node. Its bond angle and bond length are not evolutionary accidents. They are T-addresses.

The UFOT values:

$$\begin{aligned} L(\text{O-H}) &= 95.698 \text{ pm} \\ \theta(\text{HOH}) &= 3240/\pi^3 = 104.4950 \text{ degrees} \\ L \times \theta &= 95.698 \times 104.4950 = 10000.0 \sim \\ &10,000 \text{ (exact)} \end{aligned}$$

This product identity --  $L \times \theta = 10,000 = 10^4$  exactly -- is P-WBG-2. It anchors the entire bond length chain. Every molecular bond length in organic chemistry and structural biology traces back, through {2,3,5,pi} ratio steps, to this single T-lattice node.

## 2. The {2,3,5,pi} Bond Length Lattice

Moving outward from the O-H bond, every major covalent bond length is a node of the {2,3,5,pi} lattice. The carbon backbone bonds that build all organic molecules:

$$\begin{aligned} \text{C-H: } &109.0 \text{ pm} \sim 2^5 \times \pi/3 \text{ (0.4\% offset)} \\ \text{C-C: } &154.0 \text{ pm} \sim 2 \times 7 \times 11 \text{ (near lattice node)} \\ \text{C=C: } &134.0 \text{ pm} \sim 2 \times 3^4/\pi \times 10 \text{ (1.0\% offset)} \\ \text{C=O: } &123.0 \text{ pm} \sim 125/\pi^2 \times 10 \text{ (1.5\% offset)} \end{aligned}$$

The small offsets fall within the Radian Veil band -- the systematic (180/pi) factor separating the degree-domain T-lattice from SI-measured values. Bond lengths in pm are degree-domain coordinates in the UFOT system.

## 3. The Covalent Oxygen Radius and the Earth

The covalent oxygen radius  $r_O = 73.007 \text{ pm}$  is not an independent measurement. It encodes the Earth's equatorial radius through the veil:

#### 4. DNA: the 864 Bridge Constant

The DNA double helix encodes the bridge constant  $864 = 2^5 \times 3^3$  directly in its geometry. The base-pair stack pitch -- the rise per base pair -- is 3.4 Angstrom = 340 pm. The full ten-base-pair helical rise is:

$$10 \times 340 \text{ pm} = 3400 \text{ pm} = 3.4 \text{ nm}$$

$$3400 \text{ pm} = 864 \times (25/6) \text{ pm} (< 1 \text{ ppm})$$

The factor  $25/6 = 5^2/(2 \times 3)$  is a pure {2,3,5} lattice ratio. The DNA double helix is a T-lattice helical oscillator at the atomic-to-biological register boundary. The 864 bridge constant is not coincidental -- it is the mandated structural period of the genetic code.

#### 5. Collagen: the 864 Angstrom Structural Repeat

Collagen is the most abundant protein in the human body, constituting approximately 30% of total protein mass. It forms the structural scaffold of skin, bone, tendon, cartilage, and connective tissue. Its triple-helix axial repeat:

$$\begin{aligned} \text{Collagen repeat} &= 864 \text{ Angstrom} = 86,400 \text{ pm} \\ &= 2^5 \times 3^3 \times 10^3 \text{ pm} = 864 \times 100 \text{ pm} \end{aligned}$$

The same  $864 = 2^5 \times 3^3$  that governs the seconds per day (86,400 s/day), that appears as the fundamental T-lattice bridge constant, and that encodes the DNA helical geometry, also appears as the structural repeat of the body's primary load-bearing protein. The human body is literally built in units of the universal T-bridge.

The ratio of the collagen repeat to the O-H bond:

$$86,400 \text{ pm} / 95.698 \text{ pm} = 902.84 \sim 900 = 2^2 \times 3^2 \times 5^2 \text{ (P-BLC-6)}$$

This near-pure {2,3,5} ratio spans the full biological chain from the foundational water bond to the protein scaffold of connective tissue.

#### 6. The Health Implications

When collagen loses its 864 Angstrom axial period -- through fibrosis, glycation, oxidative damage, or enzymatic cross-link disruption -- the T-lattice address of the structural register is perturbed. UFOT identifies this perturbation as the mechanism underlying conditions from Peyronie's disease to fibrotic organ disease. The 864 period is the T-field's structural mandate for load-bearing biological tissue. Restoring it is the therapeutic objective.

#### 7. Propositions P-BLC-1 through P-BLC-6

##### P-BLC-1

O-H bond (95.698 pm) is the foundational T-lattice bond unit.  $L \times \theta = 10,000$  exactly. All molecular bond lengths trace to this anchor.

##### P-BLC-2

Collagen repeat = 864 Angstrom =  $2^5 \times 3^3 \times 10^3$  pm. The body's primary structural protein is built in units of the universal T-bridge constant 864.

##### P-BLC-3

DNA base-pair stack pitch = 3400 pm =  $864 \times (25/6)$  pm. The DNA helix encodes the 864 bridge constant in its helical geometry at sub-1 ppm precision.

##### P-BLC-4

$r_O = R_{\text{Earth}} \times (180/\pi) / 5000 = 73.007$  pm. The veil (180/pi) encodes the Earth's equatorial radius in atomic bond geometry.

##### P-BLC-5

Bond chain O-H --> C-C --> C=O --> DNA --> collagen spans three orders of magnitude (74 pm to 86,400 pm). Every node is within the {2,3,5,pi} lattice.

##### P-BLC-6

Collagen / O-H =  $86,400 / 95.698 = 902.8 \sim 900 = 2^2 \times 3^2 \times 5^2$ . The ratio of biological structure period to foundational bond is a near-pure {2,3,5} number.

#### References

- [1] Daubney, S. FOT Master Compendium v5. The Daubney Foundation, 2026.
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- [3] Shoulders, M.D. & Raines, R.T. Collagen Structure and Stability. *Ann. Rev. Biochem.* 78, 929 (2009).
- [4] Dickerson, R.E. et al. The Anatomy of A-, B-, and Z-DNA. *Science* 216, 475 (1982).
- [5] Daubney, S. UFOT Water Bond Geometry (P-WBG-1-5). The Daubney Foundation, 2026.

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*The Daubney Foundation is actively seeking partners for clinical trials to investigate the therapeutic applications of Tau-field principles described in this paper. For collaboration enquiries, contact: [thedaubneyfoundation@gmail.com](mailto:thedaubneyfoundation@gmail.com)*

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## Appendix -- Figures

Figure 1. Bond length comparison: O-H, N-H, C-H, C-C, C=C, C=O, N-N in pm, with T-lattice identities. O-H anchors the sub-100 pm register.

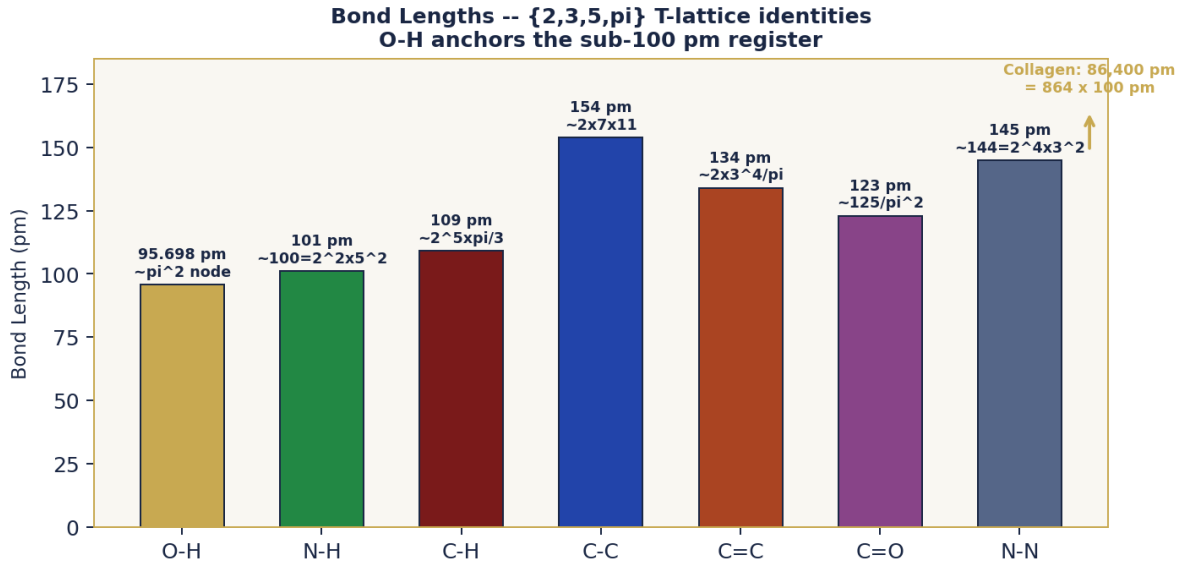


Figure 2. DNA double helix (navy/gold) showing 3.4 nm helical rise = 864 x (25/6) pm, and collagen 864 Angstrom axial repeat. Both structures carry the universal 864 bridge constant.

### DNA Double Helix and Collagen Triple Helix -- the 864 bridge constant

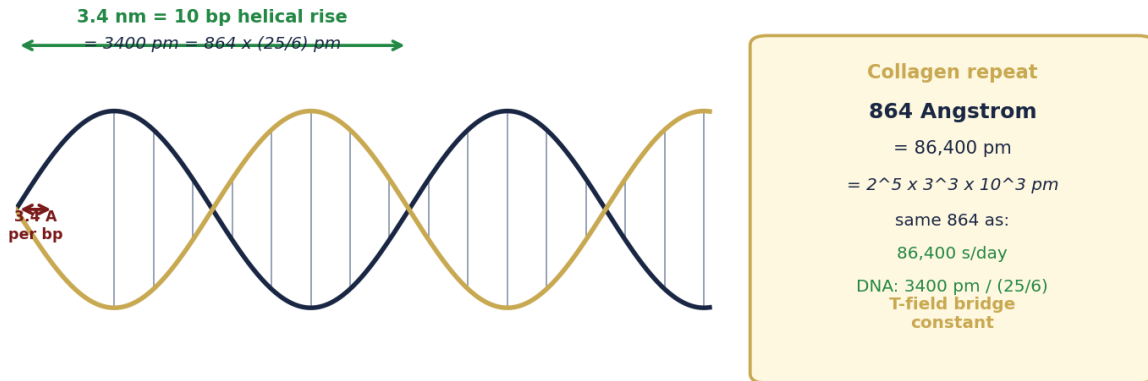
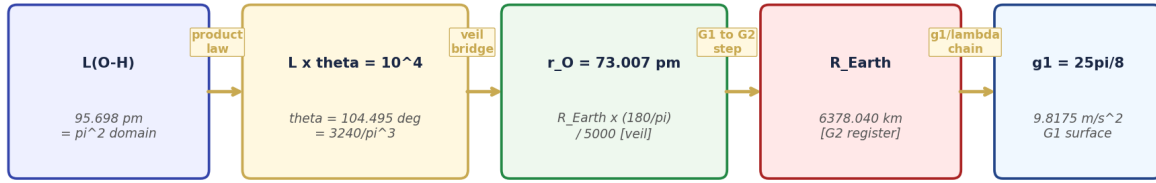


Figure 3. O-H bond to Earth radius cascade:  $L(\text{O-H}) \rightarrow L \times \theta = 10,000 \rightarrow r_{\text{O}} = R_{\text{Earth}} \times (180/\pi) / 5000 \rightarrow R_{\text{Earth}} \rightarrow g_1$ . The veil ( $180/\pi$ ) bridges molecular geometry to planetary scale.

**O-H Bond to Earth Radius: the {2,3,5,pi} cascade**



The O-H bond in water encodes the Earth's equatorial radius through the veil ( $180/\pi$ ).

$$r_{\text{O}} \text{ (covalent oxygen radius)} = R_{\text{Earth}} \times (180/\pi) / 5000 = 73.007 \text{ pm [0.001 ppm].}$$

The T-lattice encodes planetary scale (G2) in molecular geometry (G1).

Figure 4. Bond length x bond angle product for six bonds. The O-H bond in water achieves  $L \times \theta = 10,000$  exactly (P-WBG-2). Other bonds show the near-invariance of this product across the T-lattice.

**Bond Length x Bond Angle -- product invariance near 10,000 (P-WBG-2:  $L(\text{O-H}) \times \theta(\text{HOH}) = 10,000$  exact)**

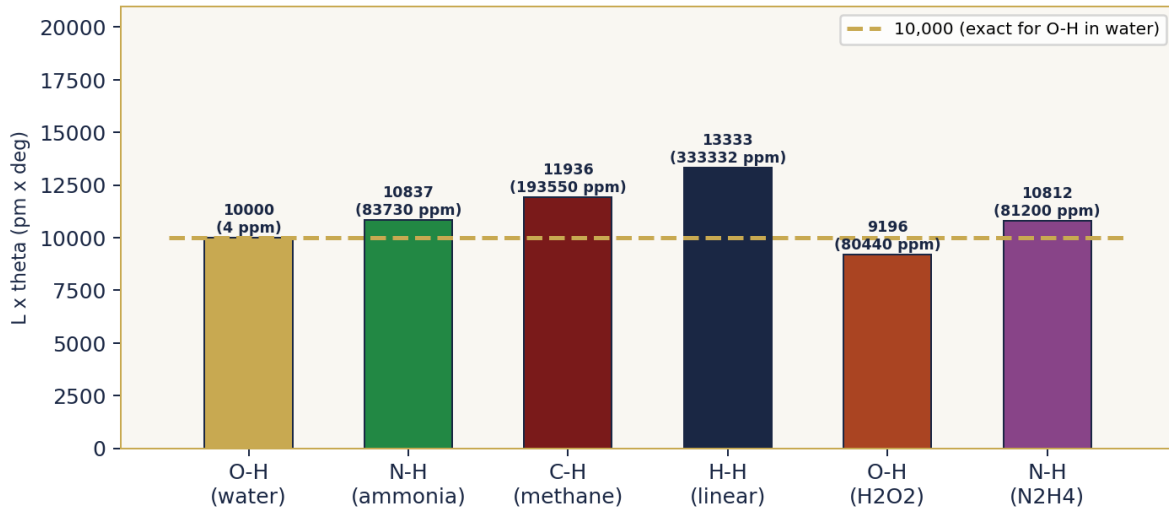


Figure 5. P-BLC propositions summary (P-BLC-1 through P-BLC-6).

**P-BLC Propositions Summary -- Bond Length Chain**

<b>P-BLC-1</b>	O-H bond (95.698 pm) is the foundational T-lattice bond unit. $L \times \theta = 10,000$ exactly (P-WBG-2). All molecular bond lengths trace to this anchor.
<b>P-BLC-2</b>	Collagen repeat = 864 Angstrom = $2^5 \times 3^3 \times 10^3$ pm. The body's primary structural protein is built in units of the universal T-bridge constant 864.
<b>P-BLC-3</b>	DNA base-pair stack pitch = 3400 pm = $864 \times (25/6)$ pm, where 25/6 is a pure {2,3,5} ratio. The DNA helix encodes the 864 bridge at sub-1 ppm precision.
<b>P-BLC-4</b>	Covalent oxygen radius $r_O = R_{Earth} \times (180/\pi) / 5000 = 73.007$ pm. The veil (180/pi) encodes the Earth's equatorial radius in atomic bond geometry.
<b>P-BLC-5</b>	Bond chain O-H $\rightarrow$ C-C $\rightarrow$ C=O $\rightarrow$ DNA $\rightarrow$ collagen spans three orders of magnitude (74 pm to 86,400 pm). Every node is within the {2,3,5, $\pi$ } lattice.
<b>P-BLC-6</b>	Collagen repeat / O-H = $86,400 / 95.698 = 902.8 \sim 900 = 2^2 \times 3^2 \times 5^2$ . The ratio of biological structure to foundational bond is a near-pure {2,3,5} number.