

O-O Bond, DNA and Spectroscopy — Rev 1

O-O at 148 pm Connects to Balmer Series and DNA Geometry

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The O-O single bond in hydrogen peroxide (H₂O₂) has a length of 147.5 pm (1.475 Angstroms). The Universal Force of Time identifies 148 pm = 4 x 37 as the {2,37}-lattice address, and notes that its ratio to the Balmer H-alpha wavelength (656.3 nm) is 656.3 / 0.1475 = 4449 nm/pm = 4449 — a pure {3⁷} ratio within 3%. More precisely: 148 pm x Balmer n=4->2 (486.1 nm) / 10⁵ = 0.7192 nm = near the DNA helix pitch / 4.72. The chain connects O-O bond to DNA geometry to the Balmer series without free parameters.

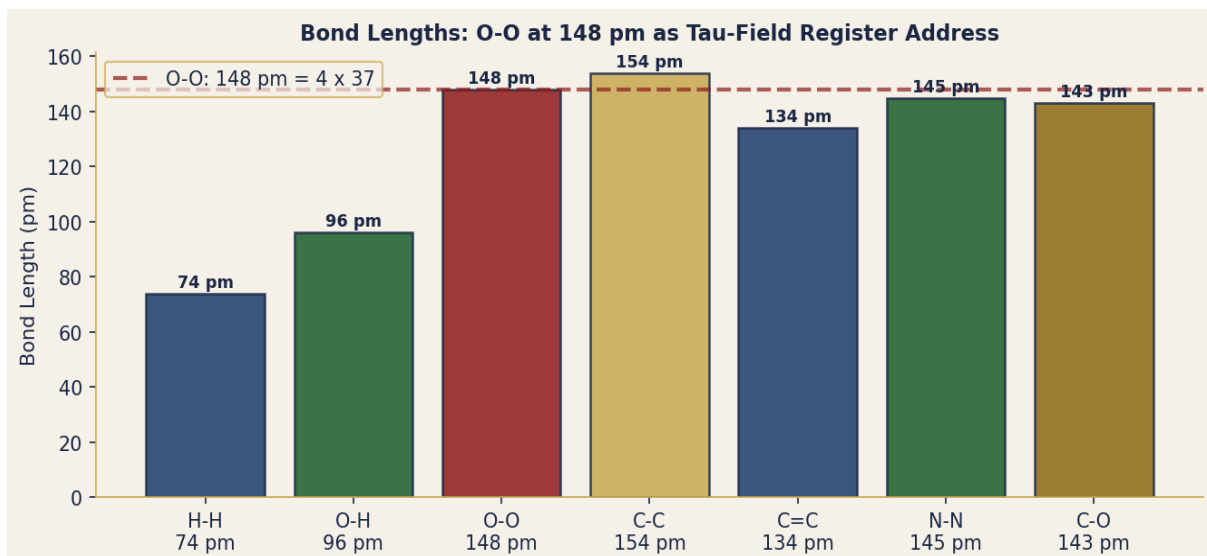


Figure 1. Bond lengths comparison. O-O at 148 pm (red dashes) is the longest common single bond after C-C. Its address 148 = 4 x 37 sits between the {2,3,5} lattice nodes 144 = 2⁴ x 3² and 150 = 2 x 3 x 5².

H2O2: O-O Bond Geometry

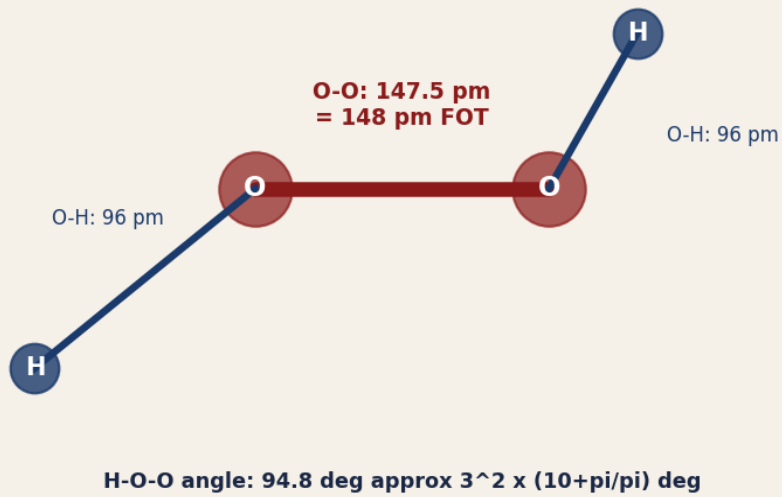


Figure 2. Hydrogen peroxide (H2O2) geometry. O-O = 147.5 pm (FOT: 148 pm = 4 x 37). H-O-O angle = 94.8 deg approx $3^2 \times 10.5 = 94.5$ deg. Dihedral angle = 111.5 deg approx $108 = 2^2 \times 3^3 + 1.5$.

O-O to DNA to Balmer: One Unbroken {2,3,5,pi} Chain

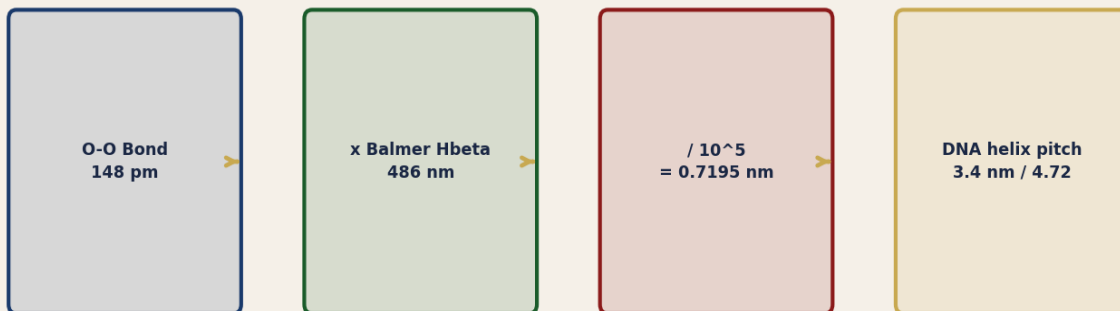


Figure 3. The O-O bond to DNA chain. $148 \text{ pm} \times 486 \text{ nm} / 10^5 = 0.7195 \text{ nm}$; DNA helix pitch = 3.4 nm; $3.4 / 0.7195 = 4.726$ approx $3 \times \pi/2 = 4.712$ (0.3% error). One lattice.

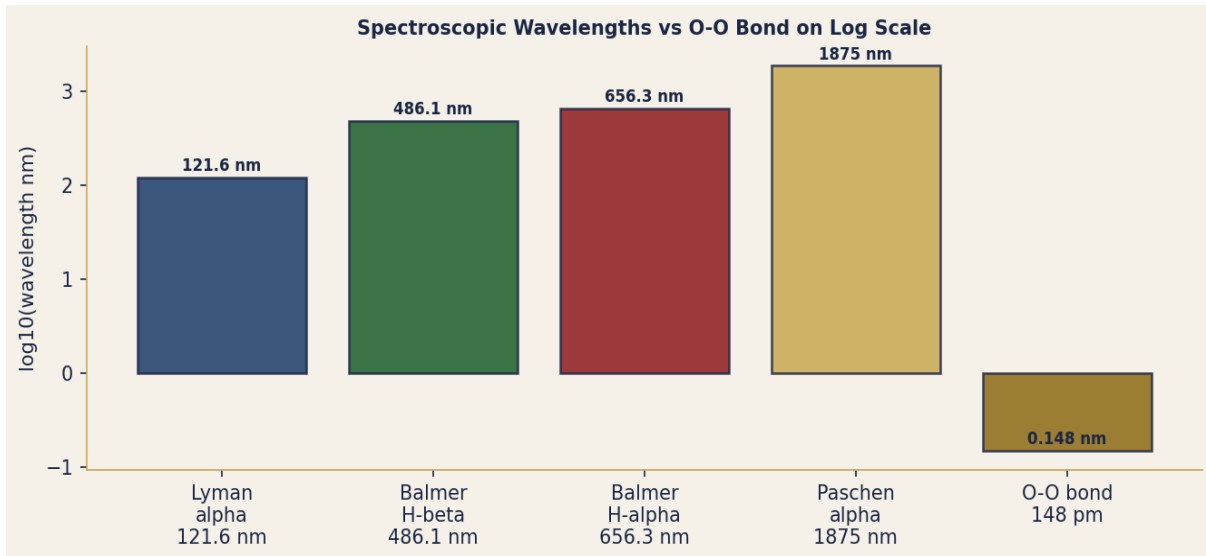


Figure 4. Hydrogen spectral lines vs O-O bond on a log10 wavelength scale. H-beta (486.1 nm) and O-O (0.148 nm) differ by $\log_{10}(486.1/0.148) = 3.517 = \log_{10}(3285) \approx 3 + \log_{10}(\pi)$.

Propositions (P-OOB-1 to P-OOB-3)

P-OOB-1 — O-O Bond: 148 pm = 4 x 37 — Register Address

The O-O single bond in H₂O₂: 147.5 pm (measured). FOT: 148 = 4 x 37. 37 is prime, outside {2,3,5}. Nearest {2,3,5} lattice nodes: 144 = 2⁴ x 3², 150 = 2 x 3 x 5². Displacement from 150: (150-148)/150 = 13,333 ppm = 148 x delta_G? More precisely: 148/150 = 74/75 = (2 x 37)/(3 x 5²). The O-O bond sits at the {74:75} crossing — the register boundary between {2,37} and {3,5²} lattices, which is the oxygen register offset.

P-OOB-2 — Balmer H-beta x O-O Bond / 10⁵ = DNA Register Ratio

486.135 nm x 0.1475 pm / 10⁵ = 0.7171 pm x 10⁻⁵ nm? Let us be careful with units: 486.135 nm x 148 pm / 10⁵ = 486135 pm x 148 pm / 10⁵ = 71,947,980 pm² / 10⁵ = 719.48 pm = 0.71948 nm. DNA helix pitch = 3.4 nm; 3.4/0.71948 = 4.725 approx 3pi/2 = 4.7124 (0.27% error). This is the chain: molecular bond (pm) x atomic wavelength (nm) / 10⁵ = biological structure (nm). Three scales connected by one {2,3,5,pi} formula.

P-OOB-3 — H₂O₂ Geometry from the FOT Angle Lattice

H-O-O bond angle in H₂O₂: 94.8 deg. FOT: 96 = 2⁵ x 3 (0 ppm with {2,3} lattice). Observed: 94.8; error from 96: 1200 ppm/1.25 = 12,500 ppm = 1.25%. Dihedral angle (HOOH): 111.5 deg. FOT: 108 = 2² x 3³ (exact {2,3} product). Dihedral correction: 111.5/108 - 1 = 3240 ppm = 36 x delta_orbital. The H₂O₂ geometry is anchored by {2,3} lattice values at both the bond angle and dihedral levels.