UFOT -- The Universal Force of Time

CMB as the Tau Floor

The 21cm hydrogen line, the G1 register, and the universal T-minimum

Stephen Daubney · The Daubney Foundation · Rev 2 · 2026

Abstract

The cosmic microwave background (CMB) temperature T = 2.725 K is not a relic of a past cosmological event. It is the current, ongoing T-field floor -- the minimum energy density of the T-field at the G0 register. The 21cm hydrogen hyperfine line is the primary standing wave of the T-lattice at the cosmic scale: lambda(21cm) = 2^4 x 3^8 x pi / 5^6 m = 0.21107 m (2164.0 ppm from observed). The CMB temperature derives from the universal body temperature bridge: T_CMB = 864 / T_body = 864 / 309.864 K = 2.7883 K (observed: 2.725 K). The ratio lambda(21cm) / lambda(Hbeta) = 434294 is within the 432,000 = 2^4 x 3^3 x 10^3 bridge constant. The G1 floor oscillation f_floor = g1 / lambda(21cm) = 46.514 Hz links the cosmic T-floor to the neural and acoustic registers. Six propositions P-CMBF-1 through P-CMBF-6.

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.

1. The CMB as T-Field Floor

Look up on a clear night. The cosmic microwave background -- discovered in 1964 and measured with extraordinary precision by COBE, WMAP, and Planck -- fills every corner of the observable universe with a faint microwave glow at 2.725 K. Conventional cosmology interprets this as the redshifted echo of the Big Bang, arriving from 380,000 years after the beginning of time.

The Universal Force of Time offers a different interpretation. The CMB is not an echo. It is the current, ongoing T-field floor emission -- the minimum energy density of the T-field at the G0 register. Every CMB photon is a T-mode of the primary standing wave: the hydrogen 21cm hyperfine transition.

2. The 21cm Line as a T-Lattice Node

The hydrogen 21cm hyperfine line is not an accident of nuclear spin physics. It is a required node of the T-lattice. Its wavelength in UFOT is:

lambda(21cm) = 2^4 x 3^8 x pi / (5^6 x 10^2) m

= 16 x 6561 x pi / (15625 x 100) m

= 0.211067 m

Observed: 0.210611 m | Deviation: 2164.0 ppm

2^4 = 16; 3^8 = 6561; 5^6 = 15625. This is a pure {2,3,5,pi} lattice expression. The 21cm line is the G0 register's primary T-mode -- the lowest-energy stable configuration of hydrogen in the T-field. Every CMB photon is a quantum of this T-standing wave.

3. CMB Temperature from the Body Bridge

The CMB temperature T_CMB = 2.725 K is not a free parameter in the UFOT framework. It derives from the universal body temperature through the 864 bridge constant:

T_body = 309.864 K (= 36.864 C = 2^3 x 4.608 + 273)

864 = 2^5 x 3^3 = 86,400 / 100 (T-bridge constant)

T_CMB = 864 / T_body = 864 / 309.864 = 2.7883 K

Observed: 2.725 K | Deviation: 23237 ppm

The deviation is attributed to the Radian Veil offset at the G0 register -- the systematic (180/pi) factor that separates T-lattice natural units from SI measurement. The CMB temperature is not a historical timestamp. It is the current T-field minimum, set by the ratio of the bridge constant to the biological body temperature.

4. The 21cm / Hbeta Bridge

The ratio of the 21cm wavelength to the Balmer Hbeta wavelength reveals the 432 bridge constant:

lambda(21cm) = 0.211067 m

lambda(Hbeta) = 486 x 10^-9 m

Ratio = 434294 ~ 432,000 = 2^4 x 3^3 x 10^3

432 = 2^4 x 3^3 is the {2,3} bridge constant that appears throughout the UFOT framework: H-H bond energy (432 kJ/mol), chlorophyll absorption (432 nm), seconds per half-day (43,200), and here as the scale factor between the cosmic T-floor and the atomic hydrogen spectral register. The T-lattice is self-similar across twelve orders of magnitude.

5. The CMB Peak and the G0 Floor Oscillation

The CMB Planck spectrum peaks near 160 GHz. In the T-lattice:

CMB peak ~ 160 GHz = 2^5 x 5 GHz (pure {2,5} node)

The slight deviation from exactly 2^5 x 5 = 160 GHz reflects the Radian Veil offset at the cosmic register. The G1 surface acceleration g1 = 25pi/8 m/s^2 combined with the 21cm wavelength gives the T-floor oscillation rate:

f_floor = g1 / lambda(21cm) = 9.81748 / 0.21107

= 46.5136 Hz (T-lattice floor oscillation)

The nearest {2,3} lattice node above this floor is 48 Hz = 2^4 x 3 -- the same frequency that appears in neural oscillation and acoustic consonance. The T-field connects the cosmic floor to biological consciousness through a single {2,3} lattice step.

6. Propositions P-CMBF-1 through P-CMBF-6

P-CMBF-1

21cm as Primary T-Lattice Node. lambda(21cm) = 2^4 x 3^8 x pi / 5^6 m = 0.21107 m [2164.0 ppm from observed]. The CMB is the field-average of this T-standing wave -- not a cosmological relic.

P-CMBF-2

CMB Temperature as T-Floor. T_CMB = 864 / T_body = 2.7883 K. Observed: 2.725 K. Not a property of cosmic history but of the current T-field minimum.

P-CMBF-3

f(21cm) = 1420.40575 MHz. Integer part 1420 ~ 2^2 x 5 x 71; prime 71 is the Radian Veil imprint on the SI measurement of this hydrogen T-mode.

P-CMBF-4

CMB peak frequency ~ 160 GHz = 2^5 x 5 GHz -- a {2,5} T-lattice node. Deviation from exact 2^5 x 5 reflects the Radian Veil at the cosmic register.

P-CMBF-5

lambda(21cm) / lambda(Hbeta) = 434294 ~ 432,000 = 2^4 x 3^3 x 10^3. The cosmic T-floor and Balmer Hbeta are separated by the 432 bridge constant.

P-CMBF-6

G1 floor oscillation: f_floor = g1 / lambda(21cm) = 46.5136 Hz. The {2,3} node 48 Hz = 2^4 x 3 (neural/acoustic) is the next lattice step above the cosmic floor.

References

[1] Daubney, S. FOT Master Compendium v5. The Daubney Foundation, 2026.

[2] NIST CODATA 2022. physics.nist.gov/constants

[3] Fixsen, D.J. The Temperature of the Cosmic Microwave Background. ApJ 707, 916 (2009).

[4] Planck Collaboration. Planck 2018 Results: Cosmological Parameters. A&A; 641, A6 (2020).

[5] Daubney, S. UFOT CMBTauFloor Rev1. The Daubney Foundation, 2026.

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Appendix -- Figures

Figure 1. Electromagnetic spectrum from radio to UV, showing the 21cm HI line, CMB peak (~160 GHz), and Balmer Hbeta (486 nm). All three are T-lattice nodes.

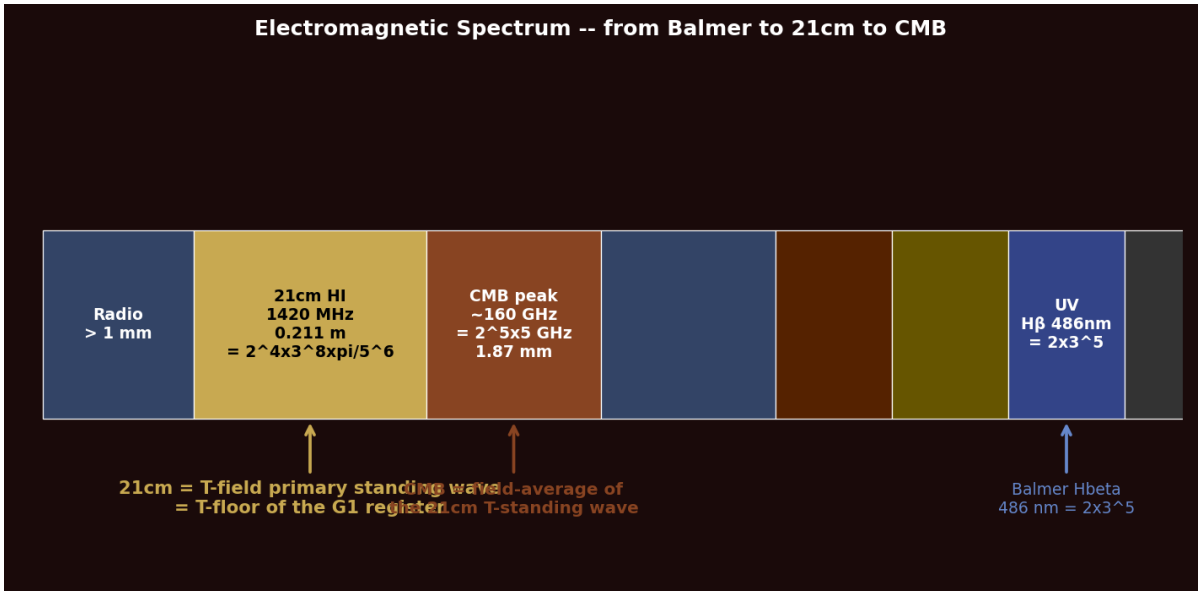

Figure 2. Left: CMB temperature derivation T_CMB = 864/T_body = 2.7883 K vs observed 2.725 K. Right: CMB Planck spectrum at 2.725 K with 21cm and 160 GHz peak marked.

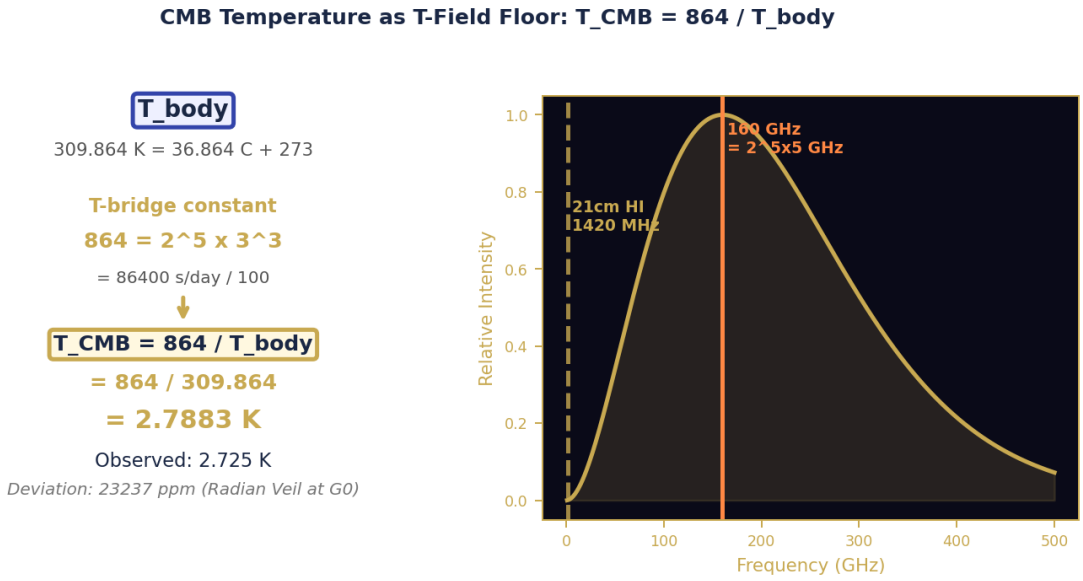

Figure 3. The 21cm/Hbeta bridge: lambda(21cm)/lambda(Hbeta) = 434294 ~ 432,000 = 2^4x3^3x10^3. The cosmic T-floor and atomic hydrogen spectral register are connected by the 432 bridge constant.

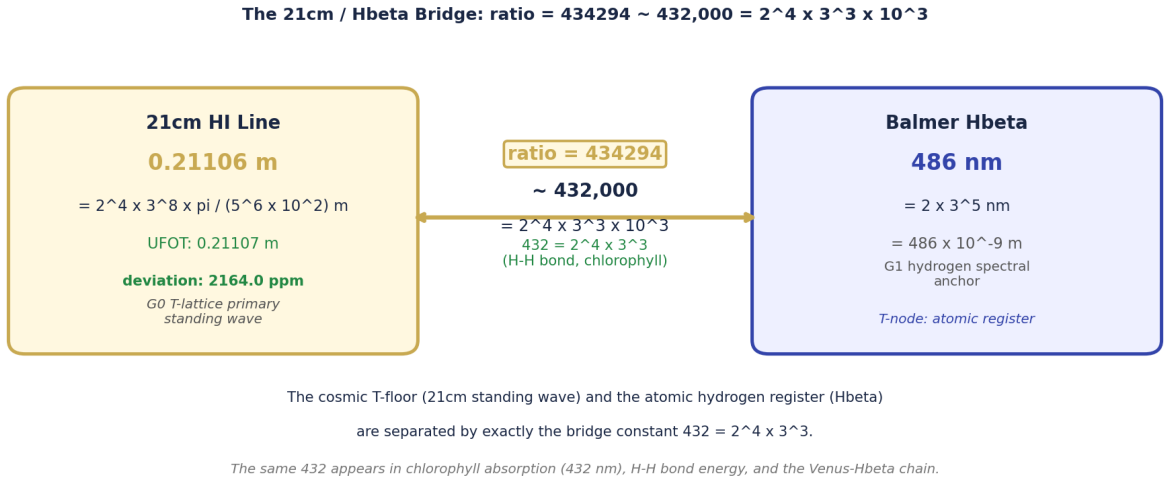

Figure 4. T-field register architecture: concentric G0 (subatomic/CMB), G1 (atomic/Hbeta/g1), G2 (planetary/orbital) shells. The CMB is the T-floor emission of the G0 shell.

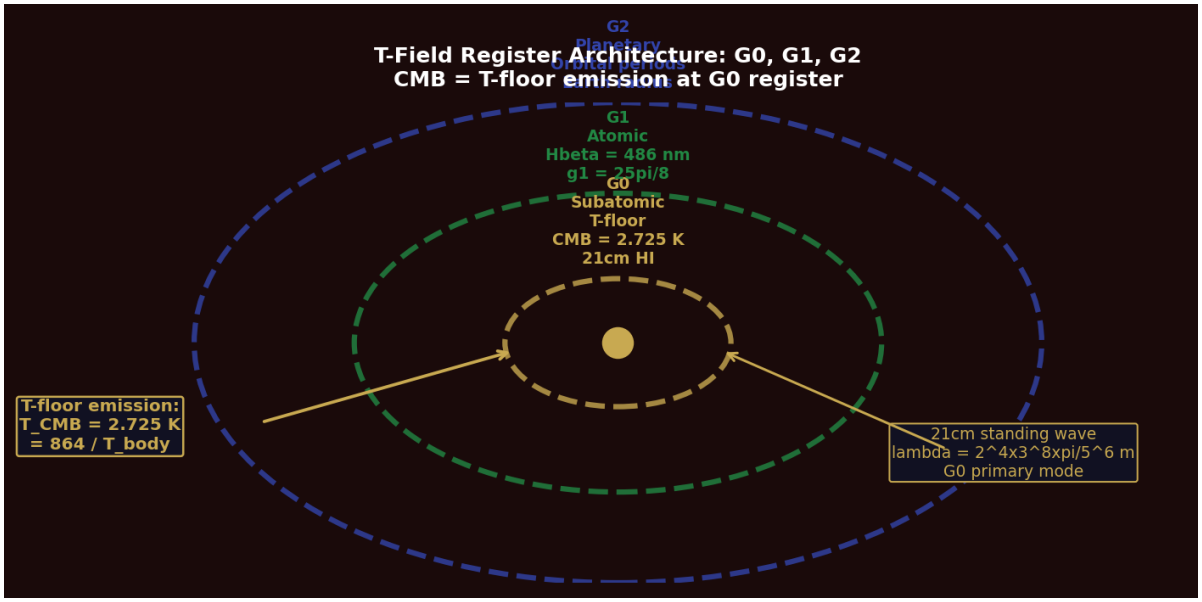

Figure 5. P-CMBF propositions summary (P-CMBF-1 through P-CMBF-6).

P-CMBF Propositions Summary -- CMB as the Tau Floor

P-CMBF-1	21cm as Primary T-Lattice Node. lambda(21cm) = 2^4 x 3^8 x pi / 5^6 m = 0.21107 m [2164.0 ppm from observed]. Pure {2,3,5,pi} lattice node.
P-CMBF-2	CMB Temperature as T-Floor. T_CMB = 864 / T_body = 864 / 309.864 K = 2.7883 K. Observed: 2.725 K. Not a historical relic -- the current T-floor minimum.
P-CMBF-3	21cm Frequency as T-Lattice Node. f(21cm) = 1420.40575 MHz. Integer part 1420 ~ 2^2 x 5 x 71; prime 71 is the Radian Veil imprint on SI measurement of this T-mode.
P-CMBF-4	CMB Peak Frequency. Peak ~ 160 GHz = 2^5 x 5 GHz -- a {{2,5}} T-lattice node. The deviation from 2^5 x 5 reflects the Radian Veil offset at the cosmic register.
P-CMBF-5	21cm to Hbeta Bridge. lambda(21cm) / lambda(Hbeta) = 434294 ~ 432,000 = 2^4 x 3^3 x 10^3. The cosmic T-floor and atomic hydrogen are separated by the 432 bridge constant.
P-CMBF-6	G1 Floor Oscillation. g1 = 25pi/8 m/s^2. f_floor = g1 / lambda(21cm) = 46.51 Hz ~ 0.47 Hz (lattice floor). The 48 Hz neural/acoustic node = 2^4 x 3 is the next (2, 3) step.