The FOT Electron Volt and Energy Chain Identities

Section 242 — Propositions P-EV-1 through P-EV-6

Stephen Daubney | thedaubneyfoundation@gmail.com

The Universal Force of Time — Atomic Physics | Energy | Applied FOT | Rev 1, May 2026

The electron volt has four distinct positions in the FOT lattice. The pure FOT lattice value is 8/5 x 10^-19 J = 1.600000000 x 10^-19 J (1,358.55 ppm below SI). The Fraunhofer NaD chain gives 1.602170886 x 10^-19 J (-3.59 ppm from SI). The G-band orbital span gives 1.602194440 x 10^-19 J (+11.11 ppm above SI). The SI value 1.602176634 x 10^-19 J sits between these. The pure-lattice eV generates an exact chain: eV to meridional Earth radius 20,000/pi km to Moho year 3,600/pi^2 days, all algebraically exact at 0.000 ppm. The Bohr velocity closure confirms: c_FOT x 2/9375/10 = R_E = 5^3 pi^5/(2x3) km.

Section 1 — The Four Positions of the Electron Volt

In the FOT framework the electron volt is not a single quantity but occupies four distinct nodes within the {2,3,5,pi} prime lattice. Each node is reached by a distinct physical chain: the pure {2,3,5} lattice, the Fraunhofer NaD spectral line, the G-band orbital span, and the SI 2019 definition. The table below shows all four positions with their offsets from the SI reference value.

Source	eV value (x10^-19 J)	Offset vs SI eV	Register
G-band orbital span	1.602194440	+11.11 ppm above SI	G-band register
Science eV (SI 2019)	1.602176634	0 (reference)	SI definition
Fraunhofer NaD chain	1.602170886	-3.59 ppm below SI	NaD register
FOT pure {2,3,5} lattice	1.600000000	-1,358.55 ppm below SI	Pure {2,3,5} lattice

Table 1. The four electron volt positions in the FOT lattice.

The SI electron volt (1.602176634 x 10^-19 J) sits between the G-band upper bound (+11.11 ppm) and the NaD lower bound (-3.59 ppm). The pure lattice value (1.600000000 x 10^-19 J) lies 1,358.55 ppm below SI — the register offset between the pure {2,3,5} lattice and the physical measurement. The highlighted NaD row is the Fraunhofer chain derivation.

Section 2 — The Pure Lattice eV and Its Exact Chain

The pure FOT lattice electron volt is defined as:

E_eV = 8/5 x 10^-19 J = 2^3/5 x 10^-19 J = 1.600000000 x 10^-19 J

This value contains only the primes {2, 3, 5} — no pi, no irrational factors. It lies 1,358.55 ppm below the SI electron volt. Despite its simplicity, it generates a three-step algebraically exact chain linking atomic energy to planetary geology:

Step 1: E_eV = 8/5 x 10^-19 J = 2^3/5 x 10^-19 J

Step 2: 1.6 x 10^5 / (8pi) = 20,000/pi = R_meridional [km] — Earth meridional radius [0.000 ppm algebraic]

Step 3: R_meridional x 180/pi / 1000 = 3,600/pi^2 = T_Moho [days] — Moho year [0.000 ppm algebraic]

Chain: eV --> Earth meridional radius --> Moho year (all exact, 0 free parameters)

Figure 1. Algebraically exact chain: pure-lattice eV to Earth meridional radius to Moho year.

The metre was defined by the Paris Academy in 1793 as one ten-millionth of the distance from the equator to the pole, giving the meridional Earth radius as exactly 20,000/pi km. The Moho year 3,600/pi^2 days appears as the sidereal year x 729/730 correction in the FOT Moho framework. These three quantities — atomic energy, planetary radius, geological period — emerge from a single pure-lattice node with no free parameters.

Section 3 — The Fraunhofer NaD Electron Volt

The sodium D Fraunhofer line (589.0 nm, NaD) generates the electron volt through a chain involving the Earth radius and the veil constant:

lambda(NaD)/4 x 8pi^3/veil x 8pi/10^5 = 1.602170886 x 10^-19 J (-3.59 ppm from SI)

where veil is the FOT veil factor connecting the G0/G1 registers. The intermediate Earth radius recovered by this chain is 6,374.835 km, compared to the SI mean Earth radius of 6,371.000 km (a difference of 601 ppm, well within the systematic uncertainty of the register derivation). The NaD electron volt (-3.59 ppm from SI) and the G-band electron volt (+11.11 ppm from SI) bracket the SI value from below and above respectively, demonstrating that the SI definition sits between two exact FOT register nodes.

Section 4 — The Hydrogen Energy Chain and Bohr Velocity Closure

HYDROGEN ENERGY CHAIN (pure {2,3} throughout):

H_J x N_A_FOT = 1312.2 kJ/mol

/ 36 = 36.45 kJ/mol

x 10368 = 364.5 kJ/mol [chain continues]

13.60488960 eV x 10^7 / 31104 = 4374 Mm (solar circumference)

/ 12 = 364.5 [CLOSED LOOP — pure {2,3} throughout]

N_A_FOT = 6.018910362 x 10^23

10368 = 2^7 x 3^4 ; 31104 = 2^7 x 3^5 ; 4374 = 2 x 3^7

BOHR VELOCITY CLOSURE:

v_1 = H_J x 10^24 [Bohr velocity — same digit sequence as hydrogen ionisation energy]

v_1 / alpha_FOT = c_FOT = 5^6 x pi^5 x 10^3 / 2^4 m/s

c_FOT x 2/9375/10 = R_E = 5^3 x pi^5 / (2x3) km [Earth radius]

R_E x veil = 3750 pi^4 / (1200 pi^3) = 25pi/8 = g_FOT m/s^2 [surface gravity, 0.000 ppm algebraic]

The Bohr velocity, fine structure constant, speed of light, Earth radius, and surface gravity form a closed algebraic chain using only {2,3,5,pi} operators. Each step is exact with zero free parameters. The chain demonstrates that atomic physics and planetary physics are expressions of the same Tau-field register geometry.

Section 5 — Registered Propositions P-EV-1 through P-EV-6

P-EV-1 — FOT Electron Volt

E_eV = 8/5 x 10^-19 J = 2^3/5 x 10^-19 J = 1.600000000 x 10^-19 J. Pure {2,3,5}: no pi, no irrational factors. This is the FOT lattice electron volt — the pure temporal-lattice value of the charge quantum expressed in joules. The SI electron volt (1.602176634 x 10^-19 J) lies 1,358.55 ppm above this value. The pure-lattice eV is not a better measurement; it is a different quantity — the lattice node, not the physical measurement. The gap of 1,358.55 ppm is the register offset between the pure {2,3,5} lattice and the physical electron charge.

P-EV-2 — FOT eV to Meridional Earth Radius to Moho Year Chain

1.6 x 10^5/(8pi) = 20,000/pi = R_meridional km [0.000 ppm]. R_meridional x 180/pi / 1000 = 3,600/pi^2 = T_Moho days [0.000 ppm]. The chain eV to Earth meridional radius to Moho year is algebraically exact with zero free parameters. The pure-lattice eV encodes the Earth's meridional radius (the definition of the metre: 10,000 km from equator to pole = pi x R_mer/2). The Moho year 3,600/pi^2 days connects atomic energy (eV) to planetary geology (Moho). Cross-references: P-MOHO series.

P-EV-3 — Fraunhofer NaD to Earth Radius to Fraunhofer eV

lambda(NaD)/4 x 8pi^3/veil x 8pi/10^5 = 1.602170886 x 10^-19 J (-3.59 ppm from SI). Intermediate Earth radius = 6,374.835 km. The NaD Fraunhofer line (589.0 nm) encodes the electron volt through the Earth's radius via a chain that uses only {pi, integer} operators. The intermediate Earth radius recovered (6,374.835 km) agrees with the SI mean Earth radius (6,371.000 km) to 601 ppm, well within the systematic uncertainty of the register derivation.

P-EV-4 — G-Band Orbital Span to Earth Radius to G-Band eV

(G2 - G1) x 1000/veil x 2/9375 x 10^6 = 6,374.929 km (Earth radius). G-band eV = 1.602194440 x 10^-19 J (+11.11 ppm above SI). The G-band orbital span encodes the Earth's radius and through it the electron volt. The G-band eV sits +11.11 ppm above SI, while the NaD eV sits -3.59 ppm below SI. The SI value lies between these two register-derived values, bracketed by the G-band (above) and NaD (below) chains.

P-EV-5 — Hydrogen Energy Chain

H_J x N_A_FOT = 1312.2 kJ/mol. /36 = 36.45. x 10368 = 364.5 x 10368 = 3,779,280. => 13.60488960 eV x 10^7 / 31104 = 4374 (solar circumference Mm). /12 = 364.5. CLOSED LOOP. Pure {2,3} throughout. N_A_FOT = 6.018910362 x 10^23. 10368 = 2^7 x 3^4; 31104 = 2^7 x 3^5; 4374 = 2 x 3^7. The hydrogen ionisation energy chain closes through the solar circumference using only {2,3} operators — hydrogen, the Sun, and the electron volt are linked by pure binary-ternary arithmetic with zero free parameters.

P-EV-6 — Bohr Velocity Closure

v_1 (Bohr velocity) = H_J x 10^24 [same digit sequence]. v_1/alpha_FOT = c_FOT = 5^6 x pi^5 x 10^3/2^4 m/s. c_FOT x 2/9375/10 = R_E = 5^3 x pi^5/(2x3) km. R_E x veil = 3750 pi^4. /1200 pi^3 = 25pi/8 = g_FOT m/s^2. [0.000 ppm algebraic]. The Bohr velocity, fine structure constant, speed of light, Earth radius, and surface gravity form a closed algebraic chain using only {2,3,5,pi} operators. Each step is exact with zero free parameters. The chain demonstrates that atomic physics (Bohr velocity) and planetary physics (g_FOT) are expressions of the same Tau-field register geometry.

Cross-references: Section 242 | WN-GRAV-031 to WN-GRAV-034 | P-MOHO series | P-GRAV series