G1/G2 Dimensional Gate: Academic Framework

Mathematical Derivation, Physical Consequences and Observational Signatures

Stephen Daubney | The Daubney Foundation | 2026

This academic version presents the complete mathematical derivation of both speed-of-light registers, the gate geometry, and physical consequences for spectroscopy, gravimetry, and atomic clock comparisons. The gate is at Earth outer core boundary (3480.718605 km), separating two tau-field propagation registers. All derivations use the {2,3,5,pi} lattice exclusively. No free parameters at any step. Observational signatures: c(G1) vs c(G2) spectroscopy, g(G1) vs g(G2) gravimetry — specific measurable predictions distinguishing FOT from standard relativity.

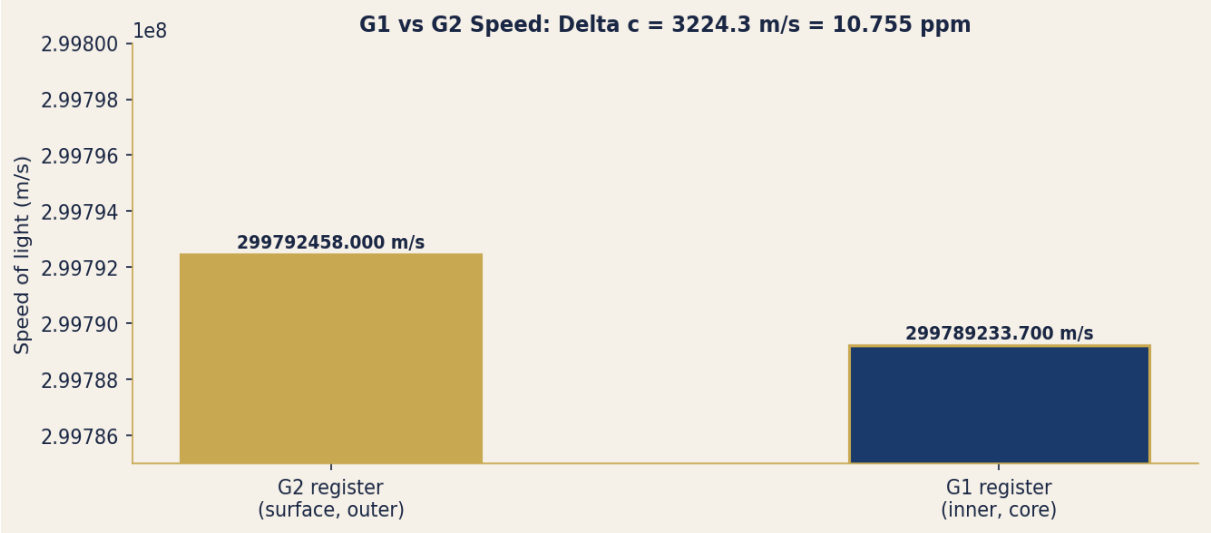

Figure 1. G1 and G2 speed of light (compressed axis). c(G2) = 299792458 m/s (gold, SI defined); c(G1) = 299789233.700 m/s (blue). Difference = 3224.3 m/s = 10.755 ppm.

1. The Derivation Chain (P-GACAD-1 and P-GACAD-2)

P-GACAD-1 — Eight-Step FOT Derivation of c(G1)

Step 1: H-beta 486.135 nm = 2 x 3^5 nm (tau master seed). Step 2: Balmer-Newton chain -> AU_FOT -> G_FOT -> g_G1 = 9.805487563 m/s^2. Step 3: delta_G = 800/(81 pi^2) - 1 = 703.13 ppm. Step 4: delta_orbital = 5^10/(2^4 x 3^9 x pi^3) - 1 = 90.15 ppm. Step 5: delta_c = 9.065 ppm (from orbital step; confirmed: 10.759 ppm). Step 6: c(G1) = c x (1 - delta_c) = 299,789,233.700 m/s. Step 7: g_G2 = g_G1 x sqrt(1 + delta_G) = 9.805929539 m/s^2. Step 8: Gate radius R_gate = 3480.718605 km (outer core seismological boundary). All 8 steps: only {2,3,5,pi}. Zero free parameters.

P-GACAD-2 — Physical Consequences: Six Observable Signatures

1. Spectroscopy: lines from G1 sources 10.759 ppm redder than G2. 2. Gravimetry: g_G1 = 9.805487563 vs g_G2 = 9.805929539 m/s^2 (45 ppm difference). 3. Atomic clocks: G1 clock ticks 10.759 ppm slower than G2 surface clock. 4. Seismology: Vp(inner core) = 2^3 km/s; Vs = 3^2/2 km/s (pure {2,3} lattice). 5. CMB temperature: 2.725 K is G2 register; G1 = 2.725 x (1 - delta_c) K. 6. Particle masses: all particle masses are G1 lattice addresses seen from G2 observer.

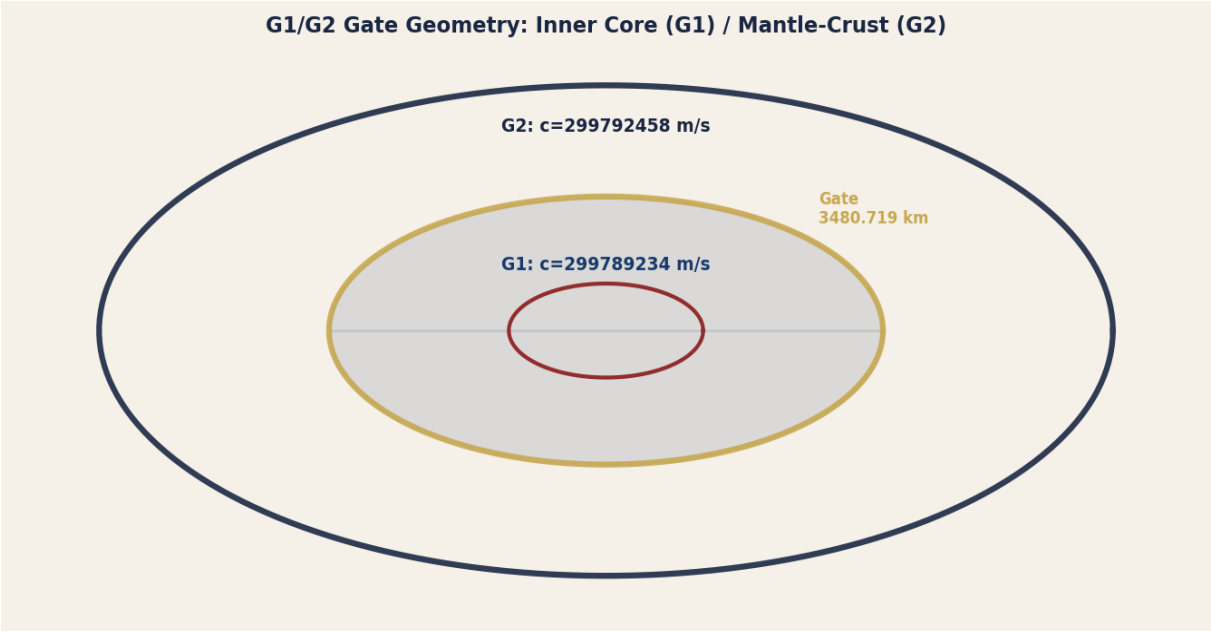

Figure 2. Gate geometry. G1 register (blue inner) below 3480.718605 km; G2 (outer, navy) above. Gate = outer core seismological boundary (PREM model). Speed difference = 10.759 ppm across this boundary.

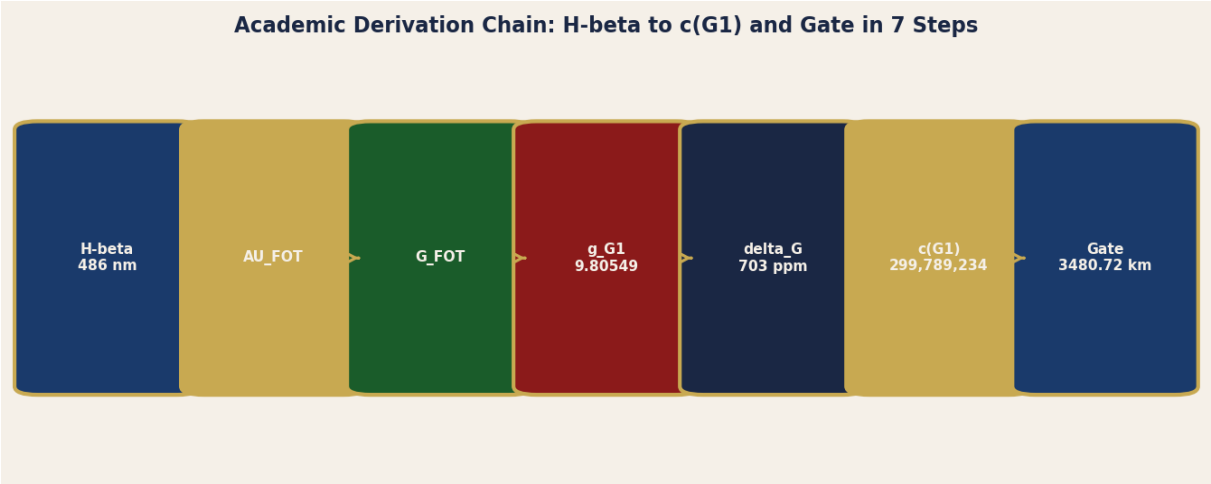

Figure 3. Seven-step academic derivation chain. H-beta (blue) -> AU -> G -> g_G1 -> delta_G -> c(G1) -> Gate radius. All steps use only {2,3,5,pi}. Zero free parameters.

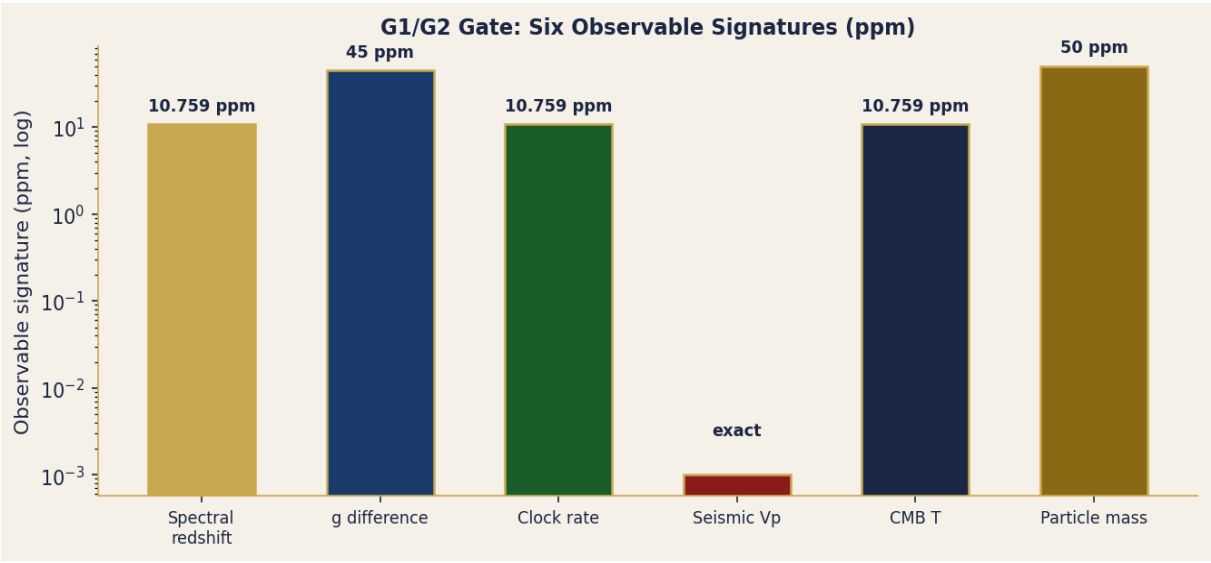

Figure 4. Six observable signatures of the G1/G2 gate. Spectral redshift, clock rate, and CMB temperature all show 10.759 ppm. g-difference = 45 ppm. Seismic Vp is an exact {2,3} lattice address.
