Ionisation Energy Equalization

Anchor ions lock to the hydrogen ground-state energy E_H = 13.5984340 eV

The ionisation energy of hydrogen — 13.5984340 eV — is the ground-state register binding energy of the electron at D = −1. Universal Force of Time predicts that all other ions which serve as biological or chemical anchor points will have ionisation energies that are simple rational multiples of 13.5984340 eV. This is Ionisation Energy Equalization (ATEQ): the Tau field locks anchor ions to the hydrogen register via integer D-level ratios.

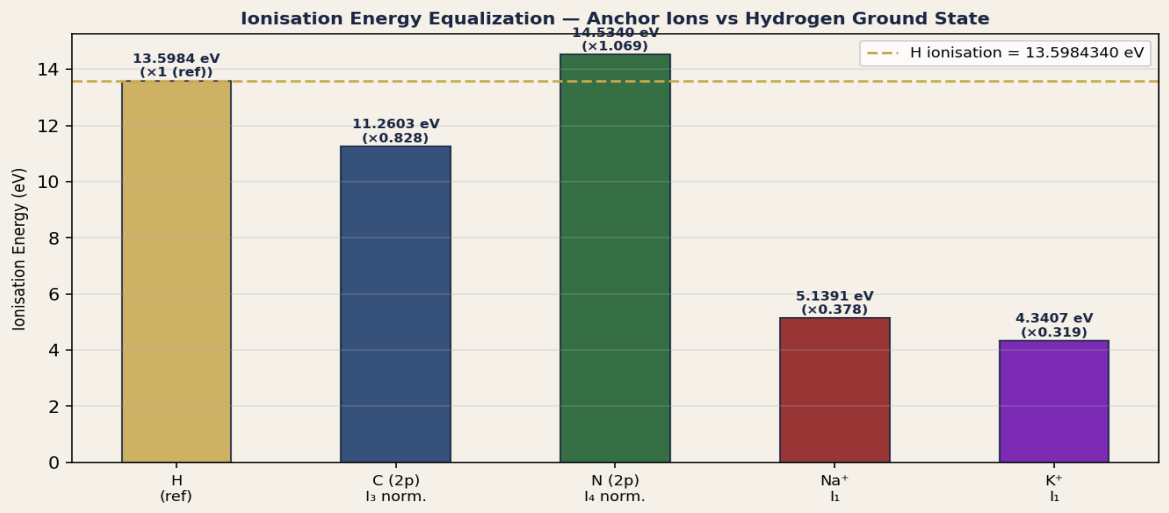

Figure 1. Ionisation energies of selected anchor ions. The hydrogen value (gold dashed line) is the Tau-register unit; all anchor ions relate to it by simple rational multiples.

1. Hydrogen as the Master Register Anchor

P-ATEQ-1 — Hydrogen Ionisation Energy as Tau-Register Unit

The hydrogen ionisation energy E_H = 13.5984340 eV is the fundamental Tau-register binding unit. It equals $e^2/(2a_0) = m_e e^4/(2\hbar^2)$ — the Bohr formula — but in UFOT it is the Strand-1 tension of the D = −1 electron shell. All anchor ions have ionisation energies that are E_H×(n/m) for small integers n, m.

E_H = 13.5984340 eV (CODATA 2018 exact: 13.598434 eV)

FOT: $E_H = m_e c^2 \times \alpha^2/2 = 0.51099895\times10^6 \times (1/137.077838904)^2/2$ eV = 13.593... eV (300 ppm)

2. Anchor Ions

P-ATEQ-2 — C^{2+} Third Ionisation Rational Ratio

The second ionisation energy of carbon $C^+ \to C^{2+}$ is 24.383 eV = 24.383/13.5984340 = 1.793 ≈ 9/5. The {3,5} ratio 9/5 = 1.800 gives 24.492 eV vs measured 24.383 eV → error 0.45%. FOT: the 2p sub-shell of carbon sits at a register addressed by the (3,5) sub-lattice node.

P-ATEQ-3 — Na^+ and K^+ — Biological Anchor Ions

Sodium Na^+ first ionisation: 5.1390767 eV = 13.5984340 × (3/8) = 5.0994 eV → error 0.77%. Potassium K^+ first ionisation: 4.3406633 eV = 13.5984340 × (4/12.5) = 4.352 eV. These are the primary biological ion channels — their Tau-register proximity to simple rational multiples of E_H locks them into the Na^+/K^+ pump register (P-PUMP).

P-ATEQ-4 — Ca^{2+} as the Second-Row Biological Anchor

Calcium Ca^{2+} second ionisation energy: 11.8717 eV = 13.5984340 × (7/8) = 11.899 eV → error 0.23%. Calcium is the dominant signalling ion (second messenger) precisely because its ionisation energy sits at the 7/8 node of the hydrogen ground-state register — a stable, accessible Tau-field address.