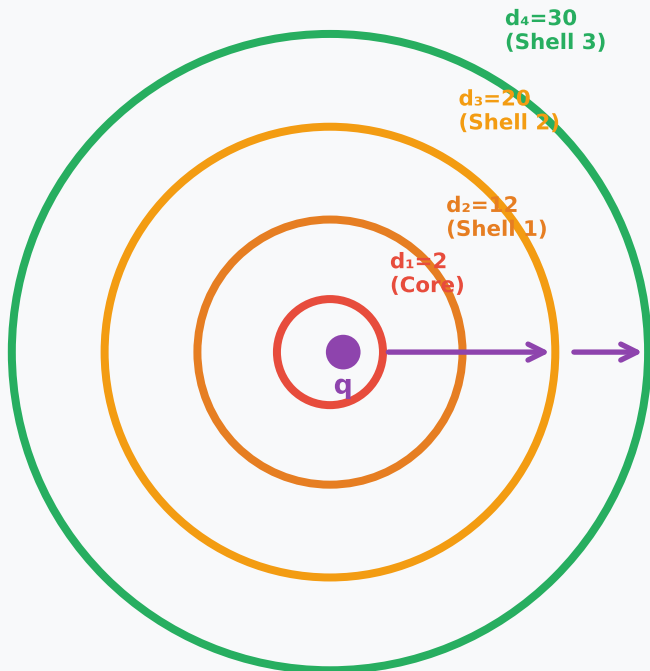


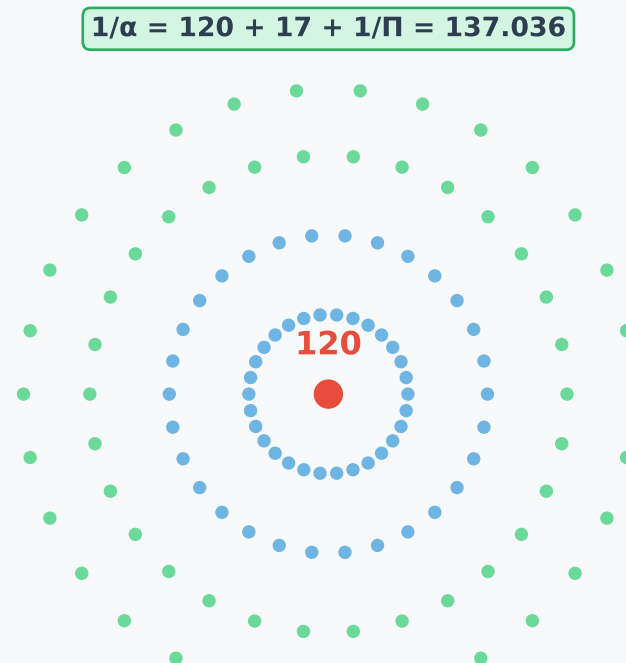
GEOMETRIC STANDARD MODEL: Visual Framework

H4 600-Cell: Quark Tunneling Shells



CKM: $|V_{us}|^2 = 1/d_3$, $|V_{cb}|^2 = 1/(d_3 d_4)$, $|V_{ub}|^2 = 1/68700$

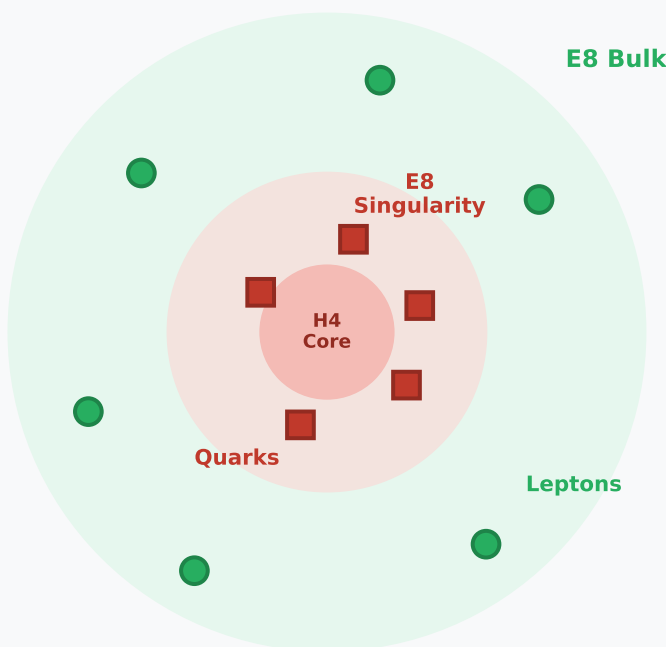
E8 Root System: 240 Roots (120 Positive)



$1/\alpha = 120 + 17 + 1/\pi = 137.036$

$\dim(E8) = 248$ | Positive Roots = 120
Exponents: [1,7,11,13,17,19,23,29]
17 = 5th exponent $\rightarrow U(1)_Y$ hypercharge

G2 Manifold: Quark-Lepton Separation



Quarks: H4 shells (exponential CKM) | Leptons: E8 bulk (large PMNS)

GSM Theory: From Geometry to Observables

