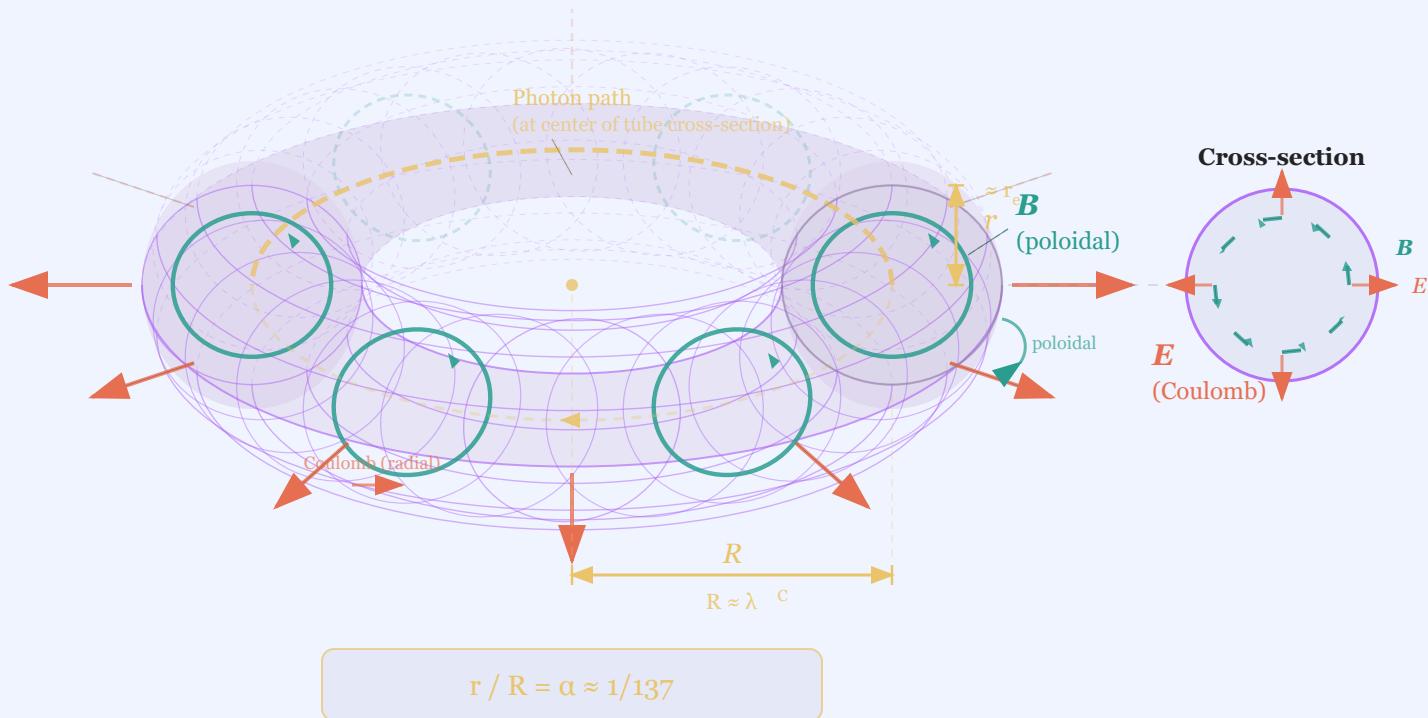


# Toroidal Electron Model

Electromagnetic energy confined in a torus with linked E and B fields



$$\mathbf{H} = \pm 1 \quad \square \quad \mathbf{Q} = \pm e$$

Topological invariant  $\square$  quantized charge

Figure 2: Toroidal electron — E-field (external Coulomb) and B-field (poloidal) with Hopf linking  $H = \pm 1$ , showing photon helical path and cross-section