



Chayut Universe Wave Function

Paper A-17 : Charge, Spin, and Emergent Symmetry

A Structural Derivation from Phase Orientation, Torsional
Topology, and Entropic Compatibility

Title: Chayut Universe Wave Function (CUWF) CUWF Paper A-17 Charge, Spin, and Emergent Symmetry: A Structural Derivation from Phase Orientation, Torsional Topology, and Entropic Compatibility

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Abstract

This paper develops a structural origin of electric charge, intrinsic spin, and the associated $U(1)/SU(2)$ symmetry structure within the Chayut Universe Wave Function (CUWF) framework. Rather than treating charge and spin as primitive labels attached to quantum fields, A-17 argues that both should emerge from deeper transport properties of an underlying wave field constrained by entropic compatibility. The paper proceeds in four linked stages. First, charge is derived from phase orientation and winding stability around defects, yielding a topological account of sign, conservation, and quantization together with an emergent $U(1)$ connection–curvature description of electromagnetism. Second, spin is reconstructed as a torsional topology class anchored at collapse nodes, from which discrete spin sectors, 4π periodicity, $SU(2)$ structure, and the compatibility logic underlying Pauli exclusion arise through holonomy rather than postulate. Third, standard QED, Pauli, and Dirac formalisms are reinterpreted as effective low-energy projections of deeper phase–torsion transport constraints rather than as ontological starting points. Fourth, the paper develops falsifiability criteria, measurement principles, and technology-facing implications, including topology-preserving spin readout, torsion-aware quantum control, and possible routes toward quantum-computing architectures grounded in stable torsional classes. The result is not presented as a final unification, but as a disciplined structural

program: charge, spin, and symmetry are relocated from abstract field labels to physically grounded consequences of topology, holonomy, and entropic transport on the CUWF manifold.

Keywords

CUWF, charge, spin, emergent symmetry, $U(1)$, $SU(2)$, phase orientation, winding number, torsional topology, holonomy, entropic manifold, collapse nodes, Pauli exclusion, quantum measurement, non-demolition readout, quantum computing

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