

Abstract Submitted
for the APR12 Meeting of
The American Physical Society

Introducing the Pointon: A Heuristic Model for the Holographic Encoding of the Universe from First Principles RONALD DE STRULLE, HPI; Pace Univ., Dept. Chem. & Phys. Sci., MAXIMILIAN RHEINHART, HPI; Spacetime Inst. — Contraction of a cyclic (3+1)d universe is described topologically as the collapse of 3-sphere to a “pointon.” A spinning universal energy quantum, characterized by an anti-symmetric relativistic angular momentum 6-tensor, M^{ab} . Holographic duals over fractal dimensions persist via spin-spin-spin couplings as $r \rightarrow 0$. A self-referential proper frame preserves continuity and causality, with t’Hooft conditions shown in equivalence classes of pointonic degrees of freedom, quantized temporally as $f(n\pi)^{-1}$ at first principles. A spin operator, S , and propagator (generator), ξ^{abc} , with recursive self-referential coefficient, $Ae^{in(i)}$, and coupling constant, $\acute{\alpha}$, where A is a complex number. Recursive cycling over $O(3)$ spin symmetry can describe generally covariant operations on a universal wavefunction. Unwinding of successive rotations of pointon’s “effective” angular momentum characterized as Markovian quanta over Hausdorff fractal topology, “act-ing” over temporal units, per 2π rotation, and helicity of proper frame governed by the self-backreaction, “Effective” indicating normalization of, \hbar , per cost in entropy, k_B . Paths of least action for pointon’s unwinding to spontaneous symmetry-breaking, from discrete non-interacting regime to surface area maximizing tetron (topological tetrahedroid) regime \rightarrow rapid expansion. Duals of “effective” informational action and angular momentum transform to linear momentum, mass-energy, and quasi- and virtual bound-state of spacetime fabric.

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Date submitted: 11 Jan 2012

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