Quantum Chronotension Field Theory – Paper XI
QCFT vs General Relativity

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Abstract

This paper compares Quantum Chronotension Field Theory (QCFT) with General Relativity (GR), outlining their contrasting ontologies, interpretations of cosmological data, and gravitational predictions. GR treats gravity as curvature in spacetime geometry. QCFT replaces geometry with a dynamic time-viscosity field eta(x,t), where gradients (Gradia) generate gravitational effects. This shift eliminates the need for spacetime expansion, singularities, or dark matter halos.

1 Ontological Foundations

Aspect	General Relativity	QCFT
Substrate	4D spacetime manifold	Scalar eta(x,t) field
Geometry	Riemann curvature tensor	Emergent from eta-structure
Gravity	Geodesic deviation	Gradia (spatial gradient of eta)
Time	Coordinate dimension	Field with local viscosity

2 Redshift Interpretation

GR defines redshift as:

$$1 + z = \frac{a(t_{\text{obs}})}{a(t_{\text{emit}})} \quad \text{or} \quad 1 + z = \frac{1}{\sqrt{1 - 2GM/r}}$$

QCFT defines redshift via eta decay:

$$1 + z = \exp\left(\int_{\text{path}} \frac{d\eta(x,t)}{\eta(x,t)}\right)$$

No scale factor or curvature required—redshift is a path integral over field decay and tension.

3 Lensing and Structure Formation

- GR: Curved spacetime bends light.
- QCFT: Wavefronts refract along Gradia gradients.
- Dense Gradia = filamentation; destructive zones = voids.

4 Black Hole Comparison

Property	GR Black Hole	QCFT Collapse (FCE)
Nature	Singularity	Field rupture
Mass Location	Pointlike	Distributed tension
Escape	Forbidden	Eta-waves may exit
Interior	Undefined	Dynamic eta topology

5 Horizon and Causality

- GR: Causal horizon from metric expansion.
- QCFT: Horizon = field coherence boundary.
- No inflation required—CMB isotropy from early eta connectivity.

6 Expansion vs. Decay

Phenomenon	GR View	QCFT View
SN1a Redshift	Metric acceleration	Eta decay + Gradia tension
BAO Compression	Length scale stretch	Eta path shortening
CMB Peaks	Acoustic echoes	Eta interference
Clock Drift	Time dilation	Gradia flow

7 Predictive Differences

Domain	GR Prediction	QCFT Prediction
Lensing	Mass-only curvature	Gradia-based lensing (mass-optional)
Voids	Matter underdensity	Scar zones from interference
Redshift Residuals	Noise or gravity	Eta-field topology
Black Hole Death	Hawking evaporation	FCEs

Conclusion

QCFT reinterprets GR's successes by replacing spacetime curvature with field tension. All gravitational, cosmological, and redshift behavior is encoded in the gradients and decay of the eta-field. QCFT eliminates the need for inflation, dark energy, and singularities—offering a coherent, field-based alternative.

QCFT does not curve space. It stretches time.