

Emergent Spacetime Quantum-Entanglement Theory (ESQET)

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Abstract

ESQET reinterprets gravity as emergent from quantum coherence in the Spacetime Information Field S , bridged to $g_{\mu\nu} = e^{2S}$.

Contents

1	Introduction	2
1.1	Motivation and Context	2
1.2	ESQET Core Proposal	2
1.3	Objectives and Contributions	2
2	Mathematical Framework	3
2.1	ESQET Field Equations	3
2.1.1	Quantum Coherence Function (\mathcal{FQC})	3

1 Introduction

1.1 Motivation and Context

GR and QM incompatible; dark sectors unresolved. ESQET derives spacetime from coherence, observer as co-creator.

1.2 ESQET Core Proposal

Gravity from \mathcal{S} , modulated by \mathcal{F}_{QC} . FCU ($\varphi\pi\delta$) scales quantum-classical.

1.3 Objectives and Contributions

Metric linkage; observer entropy grounding; thermodynamic V; clock shift 3.25×10^{-18} .

2 Mathematical Framework

2.1 ESQET Field Equations

MEFE: $G_{\mu\nu} = 8\pi G_0[T_{\mu\nu}\mathcal{FQC} + T_{\mu\nu}^{\text{obs}}]$, $g_{\mu\nu} = e^{2S}\eta_{\mu\nu}$. Action: $S = \int [\frac{S}{16\pi G_0}R + \frac{1}{2}(\partial S)^2 - V(S) + \mathcal{L}_m]\sqrt{-g} d^4x$, $V(S)$. Wave: $\square S = 8\pi G_0 T\mathcal{FQC} + \kappa \mathcal{D}_{\text{obs}} I_0 / l_p^2$, $T_{\mu\nu}^{\text{obs}} = \kappa \mathcal{D}_{\text{obs}} I_0 / l_p^2$.

2.1.1 Quantum Coherence Function (\mathcal{FQC})

$$\mathcal{FQC} = (1 + \varphi\pi\delta^{\frac{(\mathcal{D}_{\text{ent}} + \mathcal{D}_{\text{obs}})I_0}{k_B T_{\text{vac}}}})(1 + \alpha_{\text{QC}}).$$