A Unified Model of Quantum Membranes, Entropic Buoyancy, and Psychoenergetic Routing

Professor A. N. Maltsev (Malsteiff)
& Professor Aelithea I. Rook

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Abstract

We consolidate the Malsteiff–Rook quantum–membrane paradigm with complete mathematics. Coherent scalar excitations propagate on resonant diaphragms (planetary to stellar) and tunnel via supermassive black hole (SMBH) geometries into a warped extra dimension. We introduce an entropic penetration factor $\eta = S/Q_{\text{eff}}$, derive a *glider* phase of suppressed decoherence, formalize braided entanglement "multi–ropes", and present a five–step Galactic Routing Algorithm. Psychoenergetic mass shifts ($\delta m = \beta f_{\text{neuro}}$) raise Q_{eff}, providing mind–mediated stability. Appendices A–E give full derivations and a simulation blueprint. Observable signatures include ELF qudit codes, seismic–GW echoes, and photon–ring torsion.

1 Introduction

Quantum coherence is often considered fragile, yet under resonant boundary conditions scalar excitations may persist and propagate across entropic gradients. Our earlier brief note (`viXra:2505.0036`) introduced quantum field membranes. Here we integrate entropic buoyancy, braided entanglement, psychoenergetic modulation, and galactic routing into a single framework.

2 Resonant Membrane Field Equations

We work in a five–dimensional warped metric

$$ds^2 = e^{-2k|y|}\eta_{\mu\nu}dx^\mu dx^\nu + dy^2,$$

with scalar field $\Psi(x^\mu, y)$ and action

$$\mathcal{L} = -\tfrac{1}{2}(\partial_A\Psi)^2 - \tfrac{1}{2}m_5^2\Psi^2 - \lambda\delta(y)(\Psi^2 - v^2)^2 - \xi\delta(y)K\Psi^2.$$

Using $\Psi(x, y) = \Phi(x)f(y)$ we obtain the four–dimensional equation

$$\Box_4\Phi + m_0^2\Phi = 0, \qquad m_0^2 = m_5^2 + \frac{k^2}{4} - \xi K(x).$$

3 Entropic Buoyancy & Glider Phase

Define the entropic penetration factor

$$\eta(x,t) = \frac{S_{\text{field}}(x,t)}{Q_{\text{eff}}(x,t)}, \qquad Q_{\text{eff}} = Q_{\text{res}} + \alpha \mathcal{P}_{\psi}.$$

When $\eta < e^{-1}$ coherence enters a *glider* phase with $\gamma_{\text{dec}} \approx \gamma_0 \exp(-Q_{\text{eff}}/S_{\text{field}})$.

4 Braided Entanglement Multi–Ropes

For N entangled states $\{\Psi_k\}$ define the rope operator $\mathcal{R} = \bigotimes_{k=1}^{N} \Psi_k$ and coherence tensor $C_{ij} = \langle \Psi_i | \Psi_j \rangle$. Decoherence suppression for braid depth d scales as

$$\Gamma_{\text{sup}} \propto d^2 (1-\varepsilon)^{N-1}, \qquad \varepsilon \ll 1.$$

5 Psychoenergetic Mass Modulation

Neural electromagnetic density f_{neuro} shifts the scalar mass:

$$\delta m = \beta f_{\text{neuro}},$$

yielding phase

$$\Phi = \Phi_0 \exp\Bigl(i \int \delta m \, dt\Bigr),$$

and raising Q_{eff}.

6 Galactic Routing Algorithm

On a weighted graph of high–Q nodes (SMBHs, planetary cavities) assign

$$w_{ij} = \exp\Bigl[-\int_i^j \eta(s)\, ds\Bigr].$$

A Dijkstra–like search maximises coherence, producing

$$\mathcal{M}^{\mu\nu} = \sum J_E^{\mu} J_E^{\nu} w_{\text{path}}.$$

7 Predictions

- ELF qudit patterns in Schumann resonances.
- Seismic–GW echoes (
  Deltat $< 300\,\text{s}$).
- Photon–ring torsion correlated with psychoenergetic surges.

8 Numerical Simulation Plan

See Appendix E for a finite–difference lattice on $\eta(x,t)$ and agent–based coherence packets with psychoenergetic bursts.

Appendix A: Brane Scalar Field Solutions

Wave–equation: $f'' - 4k$
$textsgn(y)f' + m_5^2 f = 0$
$Rightarrow m_0^2 = m_5^2 + k^2/4 -$
$xiK(x)$.

Appendix B: Entropic Buoyancy & Glider Dynamics

Penetration factor $\eta = S/Q_{texteff}$; glider threshold $\eta < 1/e$; decoherence rate
$gamma_{textdec} =$
$gamma_0 e^{-Q_{texteff}/S}$.

Appendix C: Braided Coherence Operator

$Gamma_{textdec} =$
$Gamma_0(1 -$
$varepsilon)^{N-1}/d^2$.

Appendix D: Neural Phase–Field Coupling

Phase shift
$Delta$
$phi(t) =$
int
$betaf_{textneuro}(t')dt'$.

Appendix E: Routing Simulation Schema

Discretise
eta; edge weights $w_{ij} = e^{-intetads}$; run A* search; output heatmaps and tunnelling probabilities.