Condensed Submission Summary – PFTG-MinimalRelic

Title:
A Universal Framework for the Pressure Field Theory of Gravity (PFTG-MinimalRelic):
Eliminating Dark Matter through Scalar Field Dynamics

Author:
Joey Harper (Independent Researcher)
joeyharper1985@gmail.com

Abstract:
This paper introduces the Pressure Field Theory of Gravity (PFTG-MinimalRelic), a scalar-field-based modification of gravity that eliminates the need for dark matter. Gravity emerges as a result of energy-density gradients within a scalar field Phi, interpreted as a vacuum pressure potential. The theory reproduces known General Relativity predictions in the weak-field limit while offering distinct, testable deviations in strong-field regimes.

A complete Lagrangian is provided, including entropy smoothing and photon coupling terms. The model predicts orbit drift, gravitational lensing, black hole analogs, and CMB acoustic peak structure - all without invoking non-baryonic dark matter. Figures and simulations support orbital evolution and pressure-based refractive analogs to curvature.

Core Contributions:
- Scalar Lagrangian:
  L_total = L_Phi + L_coupling + L_entropy + L_photon,
  where L_Phi = 1/2 ^uPhi _uPhi - V(Phi)

- Weak-Field Limit:
  Reproduces GR: a = -Phi, and Deltat = t sqrt(1 + 2Phi)

- Observational Tests:
  - CMB peak: ~ 220
  - M87* shadow: 42 4 uas
  - Galaxy rotation curves match without dark matter

- Figure 1:
  Simulated orbit drift under PFTG compared to Newtonian reference

- Appendices:
  Delta(r) = 1 + 2Phi + 2Phi^2; simulation methods provided

Why This Matters:
- Avoids dark matter entirely
- Matches GR in weak-field tests
- Aligns with cosmological observations
- Offers entropy-linked inflation and quantization perspective

Request:
I am seeking endorsement to submit this paper to arXiv (gr-qc). If you're open to reviewing or endorsing, I'd be happy to share the full PDF or Overleaf link.

Thank you for your time and consideration.

- Joey Harper