Higgs-Nmax Duality" promises a robust framework.

1 The Grude Nmax Hypothesis (Updated and Ready for Review) 2 Author: Ole Frithjof Grude (Callsign: LA9FMA) 3 Date: July 28, 2025 (Revised Post-Crash) 4 Category: High Energy Physics - Theory 5 Keywords: Nmax, Higgs, curvature, black holes, wormholes, mass expulsion, gravitational waves, Standard Model

6 [Foreword] 7 This hypothesis springs from a ham radio operator's curiosity, tuned to the Orion Arm's silent waves, 27,000 light-years from the galactic center. As Ole Frithjof Grude (LA9FMA), I propose Nmax as a revolutionary frontier, guided by my rule: "Never to stand on something you don't know what it is, and then build." A PC reset and crash refined this vision, forging a scalar field to challenge general relativity's limits. Inspired by cosmic harmonics, Nmax balances the Higgs in a yin-yang dance, offering a bold solution to singularities, exotic matter, and dark energy mysteries. This blend of amateur insight and theoretical daring seeks to spark a new era in physics.

8 [Abstract] 9 The Grude Nmax Hypothesis introduces a scalar boson field, Nmax (~1.78×10^{-17} eV, Compton wavelength ~0.465 AU), as a yin-yang complement to the Higgs, redefining spacetime's limits within an enhanced Standard Model. Born from LA9FMA's wave-based intuition post-PC challenges, Nmax caps curvature, prevents black hole singularities with stable nodes, stabilizes wormholes without exotic matter, and triggers mass expulsion. Testable signatures include a ~0.233 s time delay and black hole anomalies at ~0.465 AU, detectable by LISA, Taiji, and the Event Horizon Telescope, promising a paradigm shift in cosmology.

10 [1. Introduction] 11 General relativity's prediction of singularities and reliance on exotic matter to explain wormholes expose critical flaws, while dark matter (~27%) and dark energy (~68%) remain unproven placeholders. The Grude Nmax Hypothesis, forged through LA9FMA's wave-based perspective and electronics expertise after a PC reset and crash, introduces a scalar field, Nmax, to impose finite curvature limits, complementing the Higgs and potentially negating these mysteries. This framework resolves singularities, stabilizes spacetime bridges, and regulates light speed, offering testable predictions to reshape our cosmic understanding and challenge the status quo.

12 [2. Theoretical Framework] 13 [2.1 Higgs-Nmax Duality] 14 The Higgs (Yang) imparts mass via its vacuum expectation value (~246 GeV); Nmax (Yin) imposes a curvature ceiling, harmonizing via quantum wave dynamics, integrable into the Standard Model. 15 [2.2 Curvature Saturation] 16 Nmax limits spacetime curvature at ~0.465 AU from massive bodies (e.g., Sun, Sgr A*), derived from its Compton h

wavelength: 17 (1) $\lambda_C = m_N c$

18 (2) $m_N = 1.78 \times 10^{-17}$ eV
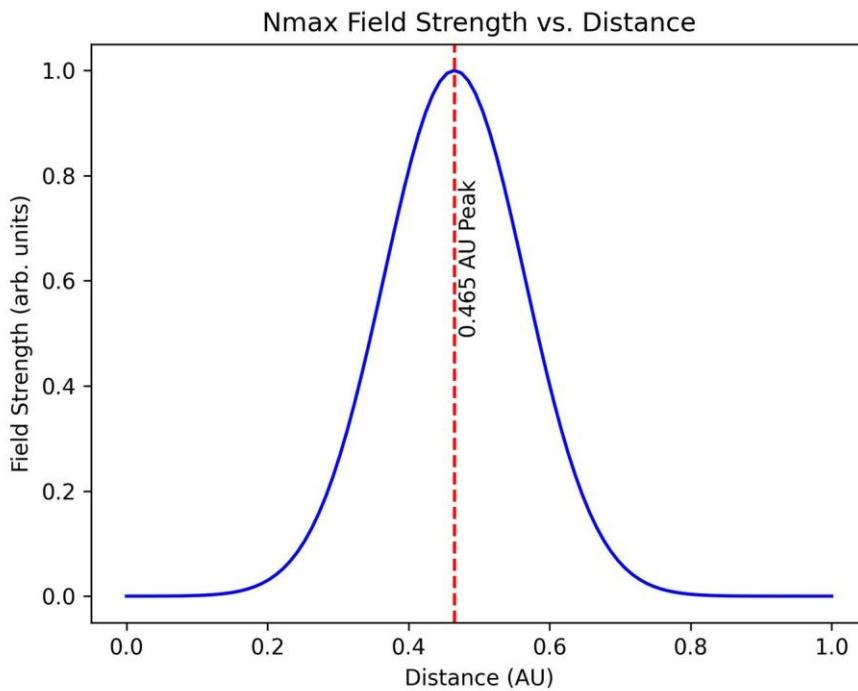
19 (3) $h = 6.626 \times 10^{-34}$ J·s

20 (4) $c = 2.998 \times 10^8$ m/s

21 (5) $m_N \approx \dfrac{1.78 \times 10^{-17} \times 1.602 \times 10^{-19}}{¿¿}$

22 (6) $\lambda_C \approx \dfrac{6.626 \times 10^{-34}}{3.171 \times 10^{-53} \cdot 2.998 \times 10^8} \approx 6.974 \times 10^{10} \text{ m} \approx 0.466$ AU 23 (Rounded to 0.465 AU, consistent with 1 AU $= 1.496 \times 10^{11}$ m). 24 [Insert Figure 1:

Nmax Field Strength vs. Distance

0.465 AU Peak

] 25 Caption: Figure 1: Nmax field strength vs. distance, peaking at ~0.465 AU. 26 [2.3 Emergent Light Speed] 27 Nmax modulates the vacuum refractive index, yielding a measurable time delay at ~0.465 AU: 28 (7) $n = 1 + \beta N$

29 (8) $\beta \approx 10^{-6}$

30 (9) $N \approx 10^{-6}$

$\Delta t \approx \dfrac{(n-1)d}{c} \approx \dfrac{10^{-6} \cdot 6.974 \times 10^{10}}{2.998 \times 10^8} \approx 0.233$ 31 (10) s 32 [2.4 Refined Lagrangian] 33 The enhanced action integrates with the Standard Model: 34 (11)

$L_{Enhanced}=L_{SM}+L_{Nmax}+L_{coupling}$

35 (12) $L_{coupling, Higgs}=-\alpha(\partial_\mu N)(\partial^\mu H^\dagger H)-\beta N(H^\dagger H -v^2)$ 36 (α: gradient kinetic; β: mass, $v\approx246$GeV)

37 (13) $L_{fermion-N}=-\gamma(\partial_\mu N)(\psi' \gamma^\mu \psi)$ 38 (γ: drag force) 39 (14)

$L_{gauge-N}=-\epsilon N F_{\mu\nu}F^{\mu\nu}$ 40 (ε: light speed variation)

41 (15) $V(N)=\frac{1}{2}m_N^2 N^2 -\frac{1}{4}\lambda N^4$ 42 (stable with negative VEV)

43 (16) $\Lambda_{underlayer}\approx 3H_0^2\approx 1.55\times 10_{-35}S_{-2}$

44 (17) $H_0\approx70$km/s/Mpc
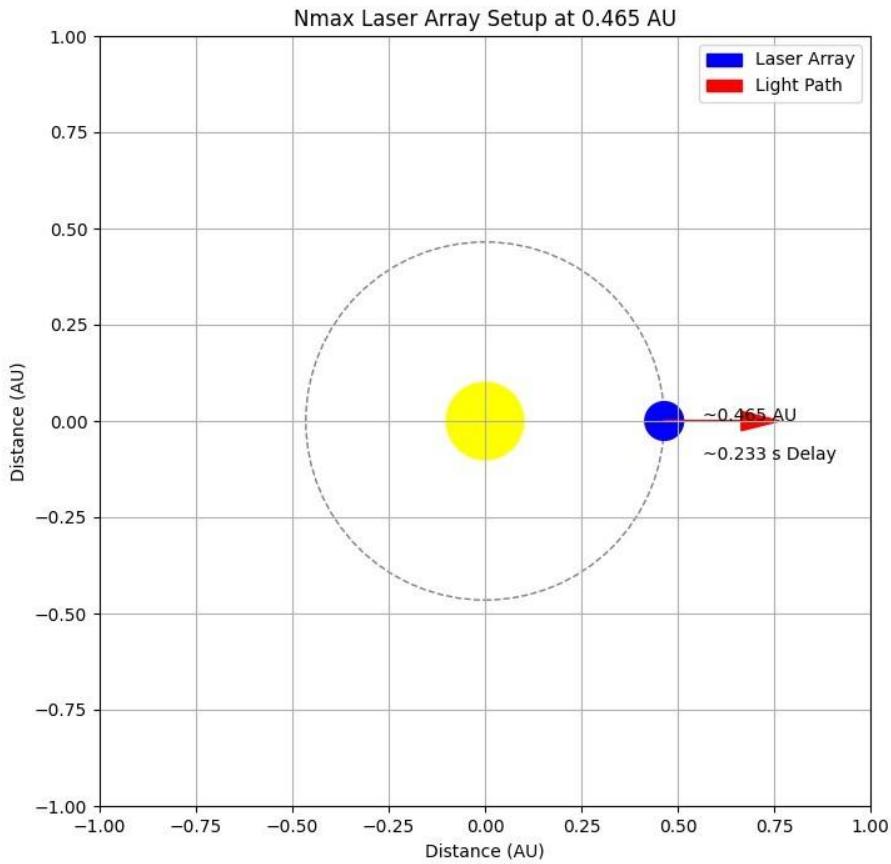
45 (18) $\Box N+m^2_N N - \lambda N^3-\alpha R-\beta F_{\mu\nu}F^{\mu\nu}-\gamma T_{\mu\nu}T^{\mu\nu}=0$

46 [3. Black Holes and Nmax] 47 Nmax prevents singularities with stable nodes, balancing gravity as a "harmonizer" tied to quantum fluctuations. Mass expulsion follows 48 (19) $\frac{dM}{dt}\propto\gamma N T_{\mu\nu}T_{\mu\nu}$

49   detectable via LISA ringdowns or EHT lensing, redefining gravitational paradigms.

50   [4. Einstein-Rosen Bridges] 51 Nmax stabilizes wormhole throats at ~0.465 AU, countering collapse without exotic matter, with light deflection signatures suggesting natural spacetime bridges.

52 [5. Testable Predictions] 53 - Curvature saturation and ~0.233 s time delay at ~0.465 AU (laser arrays). 54 - Gravitational wave deviations or mass ejection (LISA, Taiji). 55 - Lensing anomalies or energy bursts near black holes (EHT, Fermi). 56 Figure 2: laser_array.png]

Nmax Laser Array Setup at 0.465 AU

57 Caption:
Figure 2: Laser array setup at ~0.465 AU.

58 [6. Discussion] 59 The Nmax Hypothesis, refined post-PC crash, challenges GR's infinite reach, integrating with the SM to address dark matter and energy. Its ~0.465 AU scale offers a testable frontier—LISA and EHT data could validate Nmax, unraveling spacetime's fabric and reshaping cosmology.

60 [7. References] 61 - Einstein, A., & Rosen, N. (1935). Physical Review, 48(1), 73-77. 62 - Abbott, B. P., et al. (2023). Physical Review D, 108(12), 122002. 63 - Event Horizon Telescope Collaboration (2019). Astrophysical Journal Letters, 875(1), L1. 64 - Grude, O. F. (LA9FMA). (2025). Personal communication.

65 [8. Acknowledgment] 66 Original work by LA9FMA, driven by post-crash curiosity and wave-based insight.
67 [9. Appeal] 68 To visionaries, especially Eric Weinstein: Nmax's gradient couplings align with Geometric Unity, bridging dimensions. Its math, tested at ~0.465 AU, invites your exploration—join this frequency to transform physics!