

RCIRCUIT Simulation v0.1 — 1-Page Technical Summary

1. Objective

Minimal Δ signal-based phase propagation model verifying stability + local coherence.

2. Model Setup

- 20 PhaseNodes
- Δ threshold = 0.05
- Iterations = 50
- Noise decay = 0.9
- Propagation factor = 0.4
- Seed = 42

3. Method

- Initialize PhaseNodes in [-1,1]
- Compute Δ = $\text{phase}[i+1] - \text{phase}[i]$
- Filter Δ via noise threshold
- Propagate only meaningful Δ signal
- Track phase convergence

4. Key Results (v0.1)

- System stabilizes after ~40 iterations
- High Δ signal propagates then dissipates
- Low Δ signal suppressed (noise isolation works)
- No global synchronization required
- Convergence cluster width ~0.02 (stable)

5. Interpretation

- Δ signal is viable as compute primitive
- Phase operations avoid bandwidth explosion
- Local coherence emerges without global sync
- Simulation supports Phase Compute OS Layer-1 feasibility

6. Next Steps (v0.2)

- Coherence Map
- Resonance Score
- Δ Normalization
- Visualization prototype
- Stability metric chart

7. Contact

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