

# Self-Emergent Processor (SEP)

## Recursive Identity and Phase Alignment in Infinite-Dimensional Quantum Information Systems

### Historical Foundations

SEP integrates historical insights from foundational works:

1. Descartes (1641): Identity framing & infinite reference.
2. Euler (1748): Complex identity & phase mathematics.
3. Gödel (1931): Recursive incompleteness & infinite truths.
4. Shannon (1948): Information quantization & combinational growth.
5. Feynman (1985): Quantum phase and recursive measurement.
6. Lorenz & Mandelbrot: Chaos theory & fractal recursion.
7. Wheeler (1990): Recursive reality and information emergence.

SEP synthesizes these works into a cohesive recursive quantum information framework.

### Core Technical Concepts

- Identity as inverse recursive reference.
- Phase measurement requires multiple recursive references.
- Information growth is combinational:  $I(n) = n(n-1)/2$ .
- Energy emerges from recursive phase misalignment.
- Entropy reflects recursive alignment toward equilibrium.
- Information acts as gravitational coherence binding identity units.

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