

Ultra-Assembly: Warp Sink, Wormhole Embedding, and Causal Loop Geometry

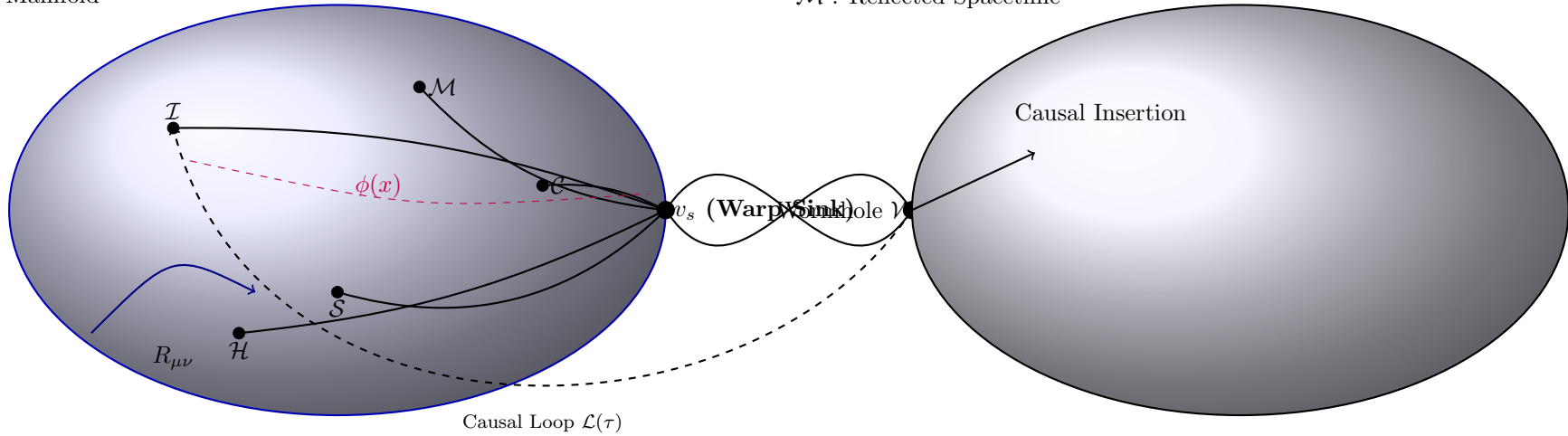
Simulonic Propulsion Research Division

November 3, 2025

Warp Endpoint Interface Diagram: Sink as Boundary Field in Ultra-Assembly

\mathcal{M} : Warped Manifold

\mathcal{M}' : Reflected Spacetime



Extended Interpretation:

The warp sink v_s not only terminates fields from the ultra-assembly but transitions to a connected emergent exit node v'_s via wormhole \mathcal{W} . The mirrored spacetime region \mathcal{M}' receives the transduced signal, forming a causal bridge. A dashed causal loop $\mathcal{L}(\tau)$ reintroduces influence from the future manifold back to original states in \mathcal{M} , generating recursive field interaction.

Wormhole and Causal Loop Formalism

Wormhole Embedding

$$v_s \in \partial\mathcal{M}, \quad v'_s \in \partial\mathcal{M}'$$
$$\mathcal{W}: v_s \leftrightarrow v'_s \text{ (Einstein-Rosen Bridge)}$$

Causal Loop Definition

$$\mathcal{L}(\tau): v'_s \rightarrow v_i \rightarrow v_s, \quad \tau \in \mathbb{R}, \text{ closed loop in time}$$
$$\exists t: \phi(v_s, t) = \phi(v_s, t + \Delta t) \Rightarrow \text{recursive interference}$$

Loop-Coherent Warp Sink Dynamics

$$\oint_{\mathcal{L}} \phi(x) d\tau = n \cdot 2\pi, \quad n \in \mathbb{Z}$$

Conclusion: The warp sink can function as a portal not only in space but in time, recursively influencing earlier field states via causal loops anchored through the wormhole network \mathcal{W} .