

# EDITORIAL DECISION SUMMARY

**Decision:** ACCEPT WITH MINOR REVISIONS

**Date:** 15 September 2025

**Time:** 16:23 GMT

**Reviewer Model:** Claude Opus 4.1

**Author:** Richard Murdoch Montgomery

**Article:** Differential Entangled Topology: A Rigorous Mathematical Framework for Dynamic Topological Evolution in Complex Systems (Revised)

## Editorial Commentary

This revised manuscript represents a remarkable transformation from the initial submission, demonstrating the author's commitment to rigorous mathematical scholarship and empirical validation. The theoretical framework now stands on solid foundations with complete proofs, whilst the comparative analysis provides compelling evidence of practical utility.

### Principal Strengths:

- Mathematical rigour:** Complete proofs with explicit constants and convergence rates
- Empirical validation:** Systematic comparison demonstrating clear advantages (Cohen's  $d = 2.31$  vs  $1.42$ )
- Practical applications:** Early warning capability in infrastructure monitoring (8.3s vs 5.1s lead time)
- Theoretical innovation:** Novel connection between persistent homology and information theory

### Minor Revisions Required:

- Standardise notation for structural interdependence functionals throughout
- Provide clearer parameter selection guidelines for practitioners
- Strengthen the proof of Theorem 2.4 with explicit measure construction
- Expand discussion of approximation strategies for large-scale systems