

Transdimensional Painter

A Working Scientist's Account of One Cross-Domain Framework Under Live Falsification Pressure

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Genre: Trade nonfiction — popular physics / popular mathematics **Word count:** ~70,000 words current draft; target 75,000–85,000 **Status:** Full draft complete; under revision; sample chapters polished

Logline

On the night of May 9, 2026, the framework at the center of this book failed its own most demanding test. I did not stop. *Transdimensional Painter* is the record of that night and the methodology that produced it — a working scientist's portrait of cross-domain thinking under live falsification pressure, told in present tense as it happens, with every claim bound to a public artifact the reader can audit.

What the book is

A popular-physics book in the lineage of Carlo Rovelli's *The Order of Time*, Steven Strogatz's *Infinite Powers*, Sean Carroll's *Something Deeply Hidden*, Adam Becker's *What Is Real?*, and James Gleick's *Chaos*. Twelve chapters in four parts, plus a Counter-History Interlude, five methodological appendices, and an Afterword. Two simultaneous threads: a memoir of a single discovery process, and a methodology textbook the reader can apply.

What no current book does

This is the first popular-physics book where every chapter is bound to a public artifact — a Lean 4 formal proof, a Zenodo DOI, a Hugging Face dataset, a Cloudflare-deployed visualization — that the reader can audit in real time. Every metric, every prediction, every benchmark has a clickable URL or a DOI behind it. The book is readable as prose and verifiable as research.

The central technical claim

One toolkit — Koopman operators (lifting nonlinear dynamics into linear Hilbert space), von Neumann's operator-algebraic formulation of quantum mechanics, and Minimum Description Length (the principle that the best model is the shortest faithful one) — turns out to be the right toolkit across seven scientific domains: celestial mechanics (the three-body problem on a 135,445-orbit public catalog), materials science, AI safety, climate early-warning detection, immunology, particle physics, and quantum information. Each domain gets the same disciplined treatment: name the invariant; name the transfer mechanism; name the breakdown boundary.

Author platform

- **Bluesky** @ken-mendoza.bsky.social (custom-domain verified) + @mendozalab.io
- **Mathstodon** @mendozalab@mathstodon.xyz — the federated mathematician/physicist community
- **LinkedIn** /in/kenmendoza, Mendoza Laboratory company page
- **GitHub** MendozaLab — public formal-proof repositories
- **Zenodo** preprints (concept DOI 10.5281/zenodo.19184467)
- **Merged DeepMind PR** to `formal-conjectures` Lean 4 repository — PR #3746, Borsuk's conjecture (Erdős Problem 505) — first such contribution from an independent researcher
- **Nineteen patents** across proteomics, quantum error correction, materials phase prediction, and information-theoretic methods

Comparable titles

Title	Author	What it does	Where TDP extends
<i>The Order of Time</i>	Carlo Rovelli (Riverhead, 2018)	One philosophical-physical question unpacked deeply	Seven domains, not one; operational discipline taught
<i>Infinite Powers</i>	Steven Strogatz (HMH, 2019)	Calculus told as a human story	Same warm voice, different idea (the operator-MDL triad), applied across domains
<i>Something Deeply Hidden</i>	Sean Carroll (Dutton, 2019)	Contested framework defended, working-practice shown	Methodology rather than interpretation; same defended-without-apology register

Title	Author	What it does	Where TDP extends
<i>What Is Real?</i>	Adam Becker (Basic, 2018)	Social-history layer of quantum foundations	The Counter-History Interlude (Hardy + Bourbaki orthodoxy, 1687–2026)
<i>Chaos</i>	James Gleick (Viking, 1987)	Introduced dynamical-systems language to popular audience	Extends the Gleick tradition into 2026 tooling, with the framework in active operation
<i>The Second Kind of Impossible</i>	Paul Steinhardt (Simon & Schuster, 2019)	35-year quasicrystal search, vindication mid-story	Shares Steinhardt's structural arc — ships at the moment of mid-flight validation, not at the close of all downstream theory

Reading experience

The book is designed to compound. A general-audience reader who reads only the twelve narrative chapters and the Interlude gets a complete book. A more technically-inclined reader who reads the five methodological appendices gets a working manual. A working scientist who reads the appendices first and the narrative chapters second gets a different book again. The structure rewards re-reading.

Status and timeline

The current draft is approximately seventy thousand words. The methodological appendices are at final-draft status. The narrative chapters are in revision. The manuscript can be delivered in completed form within approximately one quarter of a signed agreement. Full proposal, sample chapter, and live landing page available at <https://kenmendoza.com/book/>.

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