

# Introduction to T0 Theory

Johann Pascher

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This book presents the current state of the T0 time–mass duality framework and its applications to particle masses, fundamental constants, quantum mechanics, gravitation, and cosmology.

The main body of the book consists of a set of core T0 documents. These chapters reflect the present understanding of the theory and its quantitative consequences. Whenever possible, the material has been reorganized and unified so that the structure of the theory becomes as transparent as possible.

At the end of the book, several older documents are included in an appendix. These texts represent earlier stages of the development of the T0 framework. They were not removed, because they make the evolution of the ideas and the refinement of the formulas visible. In many cases, one can see how approximations were improved, how special cases were generalized, and how new empirical data helped to sharpen or correct earlier arguments.

The “live” version of the theory is maintained in a public GitHub repository:

<https://github.com/jpascher/T0-Time-Mass-Duality>

The LaTeX sources of the chapters in this book are taken from that repository. If conceptual or numerical errors are found, they are corrected there first. This means that the PDF version of the book you are reading is a snapshot of a continuously evolving project. For the most recent version of the documents, including new appendices or corrections, the GitHub repository should always be considered the primary reference.

The intention of this compilation is twofold:

- to provide a coherent, readable path through the core ideas and results of the T0 framework;
- to document, in the appendix, the historical development of these ideas, including false starts, intermediate formulations, and early fits to experimental data.

Readers who are mainly interested in the current formulation of the theory may focus on the core chapters. Readers who are also interested in the reasoning and trial-and-error process behind the theory are invited to study the appendix material in parallel.

## References

- [1] J. Pascher, *T0 Theory Overview*, 2025.
- [2] A. Einstein, *On the Electrodynamics of Moving Bodies*, Ann. Phys., 1905.

- [3] M. Planck, *On the Law of Distribution of Energy*, 1900.
- [4] R. P. Feynman, *QED: The Strange Theory of Light and Matter*, 2006.
- [5] S. Weinberg, *The Quantum Theory of Fields*, 1995.
- [6] Particle Data Group, *Review of Particle Physics*, 2024.