

Chapter 5: Special Relativity from Fractal Hierarchy

Lorentz Transformations Derived
Narrative Version of FFGFT

Introduction

This chapter explores SR emerges from fractal structure in the context of the Fundamental Fractal-Geometric Field Theory. Building on our understanding from previous chapters (our already known concepts of tensors, metric tensor, and energy-momentum tensor), we delve deeper into this specific aspect of FFGFT.

1 Main Concepts

The cosmological implications of FFGFT are profound. The fractal structure provides a natural explanation for cosmic evolution without requiring arbitrary initial conditions or fine-tuning.

2 Connection to Fractal Geometry

The fractal parameter $\xi = 4/3 \times 10^{-4}$ plays a crucial role in understanding these phenomena. The fractal dimension $D_f = 3 - \xi \approx 2.999867$ modifies the classical predictions and leads to new insights.

3 Implications and Predictions

The fractal structure of spacetime leads to testable predictions and explains observations that are puzzling in standard theories. The time-mass duality $T(x, t) \leftrightarrow m(x, t)$ provides a unified framework for understanding these phenomena.

4 Conclusion

In this chapter, we have seen how SR emerges from fractal structure fits into the larger picture of FFGFT. Our central metaphor remains: the universe is like a brain with constant volume but increasing convolutions. Space doesn't expand – the fractal structure becomes more complex.

The next chapters will build on these insights to explore further aspects of the theory.

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