Chapter 12: Cosmology – The Big Bang as Phase Transition

The Origin of the Universe

Narrative Version of FFGFT

Introduction

This chapter explores Big Bang as fractal phase transition 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 Big Bang as fractal phase transition 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`