Chapter 29: Flavor Physics
Quark and Lepton Mixing
Narrative Version of FFGFT

Introduction

This chapter explores CKM and PMNS matrices from geometry 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

Particle physics in FFGFT is governed by the hierarchy of fractal scales. Different particles correspond to excitations at different levels of the fractal structure, explaining their mass spectrum and interactions.

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 CKM and PMNS matrices from geometry 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`