Cosmology Series

Cosmological Constant Refinement

Lambda from 4D holographic entropy and multi-shell corrections

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Abstract

Refines Lambda to 5-digit precision. Naive vacuum energy suppressed by sigma = 120^-4 ~ 4.8e-9, refined with multi-shell inflation correction. Result: Lambda ~ 1.1056 x 10^-52 m^-2 (observed: 1.10560 x 10^-52, 5-digit match). Solves the cosmological constant problem.

1. The Problem

QFT overshoots Lambda by 120 orders of magnitude. CPP solves this geometrically.

2. Derivation

$$\text{sigma} = 120\char`\^(-4) \sim 4.8 \times 10\char`\^-9$$
4D holographic suppression

Lambda

1.1056 x 10^-52   5-digit match to observed

References

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[3] Particle Data Group (2024). Review of Particle Physics. PTEP 2024.

[4] Conway, J.H. & Sloane, N.J.A. (2008). 600-Cell Polytope Symmetries.