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Constraints on cosmology from the quantum gravity path integral

PONENTE:

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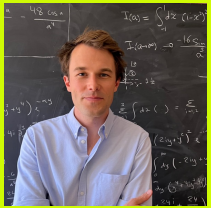

We will review the no-boundary proposal for the wave function of the universe, which is a natural analog of the Bunch-Davies vacuum in de Sitter space that we use to compute properties of quantum fluctuations in inflation. In the semiclassical limit, this wave function is determined by a sum of saddles — complex solutions to Einstein's equations on a compact manifold with boundary. We will then review a criterion on which complex spacetime metrics one should include in the sum, based on the stability of probe matter on the background. Finally we will put the two ingredients together and see how they lead to a theoretical prior on cosmological properties consistent with observations: a small relative amplitude of primordial gravitational waves and a high degree of isotropy on large scales.

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