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About the measure of the bare cosmological constant

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I try to revive, and possibly reconcile, a debate started a few years ago, about the relative roles of a bare cosmological constant and of a vacuum energy, by taking the attitude to try to get the most from the physics now available as established. I take as starting point the proposals on how to regularize the particles vacuum energy without violating Lorentz invariance. I notice that the bare cosmological constant of the Einstein equations, which is there ever since GR emerged, is actually constrained (if not measured) indirectly from the effective cosmological constant observed now, as given by Λ CDM Precision Cosmology and from the cumulative vacuum contribution of Standard Model, SM, particles, when this is evaluated using the well-established physics of Quantum Field Theory, QFT. Therefore the fine tuning, implied by the compensation to a small positive value of the two large contributions, could be seen as offered by Nature, which provides one more fundamental constant, the bare Lambda. The possibility is then discussed of constraining (measuring) directly such a bare cosmological constant by the features of primordial gravitational wave signals coming from hypothetical epoch's precedent to the creation of particles. A hint is briefly discussed for a possible bare Lambda inflation process.

Summary

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