

De Sitter space as coherent state of gravitons

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Not a long ago, it was argued that the quantum gravity only tolerates de Sitter as a state on top of a valid vacuum. So, we construct the de Sitter state as a coherent state of gravitons on top of the Minkowski vacuum. To make the construction consistent, we use BRST quantization. As an example, first we study such construction in QED, and then we generalise it in linear gravity. Coupling the gravity with large number of soft scalars give us possibility to take double-scale, so-called species limit, in which gravity linearize and the construction is exact. In this theory, only collective quantum phenomena, like Gibbons-Hawking radiation, survive. We also double-check consistency of our construction using the above processes.

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