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Background-independent field quantization: N-cutoffs regularization and N-geometries

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We apply a novel background-independent and scale-free quantization scheme on (non-)compact maximally symmetric spacetimes. The "N-cutoffs" is a UV regularization procedure on the spectrum of the fields' fluctuation modes implemented on the quantum number. We apply this regularization to scalar and metric fluctuations: both are found to reduce the curvature of the "N-geometries" leading to vanishing values in the limit of removing the cutoff. We argue then how the curvature singularity related to the "cosmological constant problem" is an artifact resulting from a rigid-background-dependent computation.

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