

Wavefunctions in dS/CFT revisited: principal series and double-trace deformations

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We study wavefunctions of heavy scalars on de Sitter spacetime and their implications to dS/CFT correspondence. In contrast to light fields in the complementary series, heavy fields in the principal series oscillate outside the cosmological horizon. As a consequence, the quadratic term in the wavefunction does not follow a simple scaling and so it is hard to identify it with a conformal two-point function. In this paper, we demonstrate that it should be interpreted as a two-point function on a cyclic RG flow which is obtained by double-trace deformations of the dual CFT. This is analogous to the situation in nonrelativistic AdS/CFT with a bulk scalar whose mass squared is below the Breitenlohner-Freedman (BF) bound. We also provide a new dS/CFT dictionary relating de Sitter two-point functions and conformal two-point functions in the would-be dual CFT.

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