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The Grand Slam of IIB Supergravity: 4pt @ 1-Loop.

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We explore the structure of supergravity on AdS5xS5 at one loop, by constructing multi-channel four-point correlators for Kaluza Klein modes on the five-sphere.
We do so by insisting on the consistency of the OPE of N=4 SYM, and using analytical bootstrap techniques. In particular, the presence of $1/N^4$ contributions from protected double trace operators at the unitarity bound is a novel effect, and requires a careful multiplet recombination, unlike the tree level case. Since both the double discontinuity and (partially) the single discontinuity are predicted independently, the bootstrap problem is overconstrained. Will supergravity be able to find the solution? We show indeed that for a number of KK correlators there exists a unique solution, up to contact terms, such that all $1/N^4$ predictions are correctly reproduced.

This is work done in collaboration with James Drummond and Paul Heslop.

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