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## Holographic AdS5 correlators for LLM geometries

*Thursday 5 September 2024 14:00 (30 minutes)*

We use the supergravity technique to compute heavy-heavy-light-light (HHLL) four-point correlation functions of operators in 4D  $N=4$  Super Yang-Mills (SYM) theory. We compute the two-point function of light probe operators in the background of Lin-Lunin-Maldacena (LLM) geometries dual to heavy operators, thus avoiding the use of Witten diagrams. By taking a limit of the HHLL correlators, we also obtain all-light LLLL four-point correlators.

In particular, we consider LLM geometries generated by profiles which are ripple deformations of a circle. These are dual to coherent superpositions of chiral primary operators of  $N=4$  SYM. For the light probe, we use the dilaton field, which is dual to a descendant of a chiral primary.

We perform the analysis of the correlators both in position space and in Mellin space, and use a Ward identity to compare them with known results for all-light four-point correlators of chiral primaries.

### Link to publication (if applicable)

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