The holographic dual of Lorentzian OPE blocks

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Abstract: Operator Product Expansion (OPE) is the one of the main features in conformal field theory in which OPE has the finite radius of the convergence. Given two operators, we can expand them by all possible primaries and each contributions are packaged into so called "OPE blocks". Recently the authors[1] pointed out that the scalar OPE block can be recognized as the integral of the bulk AdS free field over the geodesic along two boundary points. In this work, we generalized their result into timelike separation case and also higher spin blocks. With this result, we can directly consider the Lorentzian version of "Geodesic Witten Diagram" for any configuration. In addition we address the connection between our prescription and other proposals[2,3] and shadow transform in the bulk field.

References

[1] da Cunha, Bruno Carneiro, and Monica Guica. "Exploring the BTZ bulk with boundary conformal blocks." *arXiv preprint arXiv:1604.07383* (2016).

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