Heavy-light Bootstrap from Lorentzian Inversion Formula

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ABSTRACT

We study heavy-light four-point function where the conformal dimension of heavy operator is as large as central charge $C_T \to \infty$. Employing Lorentzian inversion formula back and forth shows the universality of lowest-twist multi-stress-tensor T^k as well as large spin double-twist operators $[\mathcal{O}_H \mathcal{O}_L]_{n',J'}$. In this way, we can bootstrap heavy-light four-point function with extracting relevant OPE coefficients and anomalous dimensions. As examples, we exhibit $d = 4$ heavy-light bootstrap up to triple-stress-tensor exchange, and general dimensional heavy-light bootstrap up to double-stress-tensor exchange.

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