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Bootstrapping the AdS Veneziano amplitude

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I will present the derivation of the AdS Veneziano amplitude for the scattering of gluons in type IIB string theory on AdS5×S5/Z2in the presence of D7 branes, in a small curvature expansion. This is achieved by combining a dispersion relation in the dual 4d N=2 SCFT with an ansatz for the amplitude as an open string worldsheet integral over single-valued polylogarithmic functions evaluated on the real line. Single-valued functions arise because curvature corrections can be thought of as extra insertions of soft gravitons. In this way we fix the first two curvature corrections, which satisfy consistency checks in the high energy limit, the low energy expansion as previously fixed using supersymmetric localisation, and for the classical energy of the exchanged massive string operators. Our result predicts new Wilson coefficients and quantum corrections to the energies of massive strings that could be checked with future localisation, semi-classical or integrability computations.

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