

In this article, the author comes back to the original proposal of twistor-string theory [1] and shows the Britto-Cachazo-Feng-Witten (BCFW) recursion relations [2] among tree amplitudes of gluons by evaluating the twistor-string path integral at genus zero. The proof is developed along the lines of techniques and interpretations proposed in a recent paper [3]. Roles of higher-genus contributions to loop amplitudes are not clear; it is out of the scope of this paper. However, the proof does suggest a rather simple geometric structure of the BCFW relations at loop levels in comparison to the complexity of loop-amplitude computations in terms of Grassmannian contour integrals. Clarification of the geometry will shed some light on the origin of such complexity and will lead to more satisfactory understanding of the scattering amplitudes.

References

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