

In this article, the authors revisit a formula for tree-level scattering amplitudes of gluons [1] and show, for the first time, its direct connection with the Britto-Cachazo-Feng-Witten (BCFW) recursion relation for the gluon amplitudes [2]. The relation is shown by rewriting the formula in terms of twistor and dual twistor variables. This reformulation is inspired by a recently developed dual formulation for an S-matrix of $\mathcal{N} = 4$ super Yang-Mills theory [3]. Explicit derivations of the BCFW relation are given for six- and seven-point amplitudes. Extension to more general cases seems possible with more intricate computations involved. This new approach is expected to be useful for loop calculations of gluon amplitudes.

References

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