

This is a follow-up paper of the previous papers by the same authors [1, 2]. In these papers the authors have developed a technique for the calculation of off-shell quantities, such as form factors and correlation functions, of gauge-invariant local composite operators. This study is mainly motivated by recent progress in the computation of scattering amplitudes in $\mathcal{N} = 4$ super Yang-Mills theory, characterized by uses of the (super)twistor space and the spinor-helicity formalism. The authors have indicated how to compute the tree-level form factors of the MHV (Maximally Helicity Violating) type for any gauge-invariant composite operators in the twistor-space formulation of $\mathcal{N} = 4$ super Yang-Mills theory [2].

In this article under review, the authors further study the computation of the non-MHV type form factors. In the non-MHV cases there arises a treatment of propagators. In order to deal with this issue the authors apply the so-called inverse-soft-limit technique developed in [3]. The authors also discuss how to calculate generalized correlation functions and possible extensions to loop cases. Details on these studies are reported in a recent PhD dissertation by one of the authors [4].

References

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