

Recently, along the lines of rapid developments in the computation of scattering amplitudes in gauge theories, an interesting relation between correlation functions and expectation values of Wilson loop operators in $\mathcal{N} = 4$ super Yang-Mills theory is conjectured [1]; see also [2, 3] for further investigations. In this article, a proof of this relation is presented by use of supertwistor space at the level of the integrand of each physical quantities. Use of supertwistor variables have been useful in the recent developments of amplitude calculations and particularly in the proof of the so-called scattering-amplitude/Wilson-loop correspondence in the planar $\mathcal{N} = 4$ super Yang-Mills theory [4, 5].

The reader may find the materials covered in this article too technical but these should be understood in the above context. This article shows the richness of the subject around the computations of amplitudes, correlators and Wilson loops in gauge theories and the importance or the usefulness of the supertwistor space in these computations.

References

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