

Introduction to String Theory

Group Project: String Scattering Amplitudes

(Speakers at Strings 2012: Oliver Schlotterer)

Outline String scattering amplitudes have been a lively research topic for many years. A very recent and extensive review of string scattering amplitudes may be found in [1]. For a very recent research paper see [2].

Note: The methods of Suvrat Raju and John Carrasco are mostly distinct from this stringy approach. They are using field theory computations or supergravity computations in order to compute (field theory) scattering amplitudes.

Task 1 Write up a one-page-summary explaining the main idea of and recent progress on string scattering amplitudes.

Task 2 a) Compute the Veneziano amplitude, see Polchinski section 6.4.

b) What happens at one-loop order?

References

- [1] O. Schlotterer, *Scattering amplitudes in open superstring theory*, *Fortsch.Phys.* **60** (2012) 373–691.
- [2] O. Schlotterer and S. Stieberger, *Motivic Multiple Zeta Values and Superstring Amplitudes*, [arXiv:1205.1516](https://arxiv.org/abs/1205.1516).