



Contribution ID: 49

Type: **not specified**

Closed formulae for superstring tree amplitudes: Multiple zeta values and the Drinfeld associator

Thursday 26 September 2013 15:00 (20 minutes)

We discuss tree level scattering of massless open superstring states on a worldsheet of disk topology – for any number of external legs. The entire state dependence of these disk amplitudes can be expressed in terms of gauge theory subamplitudes from the point particle limit. The string corrections entering through momentum dependent integrals over the disk boundary can be disentangled from the Yang-Mills seeds and analyzed separately. Their power series expansion in the string length and momenta involves multiple zeta values (MZVs). We briefly review some mathematical background on MZVs and the network of relations between them.

As the main result of the talk, the explicit form of any tree level string correction to YM theory is derived from the generating function of MZVs – the Drinfeld associator. It interpolates between the worldsheet integrals in N -point and $(N-1)$ -point scattering and leads to a recursive formula for the momentum expansion of any disk amplitude. The analysis is valid for any number of spacetime dimensions or supersymmetries and chosen helicity configurations.

Primary author: Dr SCHLOTTERER, Oliver (AEI Potsdam)

Presenter: Dr SCHLOTTERER, Oliver (AEI Potsdam)

Session Classification: Parallel Session 3: Strings & Mathematical Physics

Track Classification: Strings & Mathematical Physics