

Crossing equations for the $AdS_5 \times S^5$ string S-matrix

Abstract

In conventional relativistic integrable field theories the requirements of crossing symmetry and unitarity essentially determine completely the S-matrix. In this talk I describe an algebraic way to implement crossing relations for the $AdS_5 \times S^5$ superstring worldsheet S-matrix. The approach is based on a Hopf-algebraic formulation of crossing in terms of the antipode and a construction of ‘generalized rapidities’ using an auxiliary elliptic curve. The result is a derivation of a set of functional equations for the scalar factor of the S-matrix.