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Adding Flavour to Nonplanar Integrability

Thursday, 14 July 2011 08:15 (15 minutes)

<p>N=4 SYM theory has been extensively studied in the planar limit. A very significant result of this study is a map from the planar dilatation operator to the Hamiltonian of an integrable spin chain. In this talk we consider a large N (but not planar) limit of the theory. This is a considerably more complicated problem since non-planar corrections need to be summed. This summation is accomplished by employing the restricted Schur polynomials. We give an analytic formula for the action of the dilatation operator on the resticted Schur polynomials and then proceed to calculate the one loop anomalous dimensions. Our result shows that the dilatation operator reduces to a set of decoupled harmonic oscillators, generalizing results known from the sector of theory constructed using two complex Higgs fields (two flavors) to the sector with three complex Higgs fields (three flavors).

Level (Hons, MSc,
   PhD, other)?

PhD

Consider for a student
   award (Yes / No)?

Yes

Would you like to
 submit a short paper
 for the Conference
 Proceedings (Yes / No)?

No

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