Counting instantons in N=1 theories of class Sk

Thursday 23 August 2018 14:30 (45 minutes)

In this talk we will explain how to obtain the instanton partition functions of a large class of N=1 supercon-formal theories (SCFTs), called Sk.

We will begin by introducing this class of N=1 SCFTs, which is obtained from Gaiotto's class S of N=2 SCFTs via orbifolding. We can study the Coulomb branch of these theories by constructing and analyzing their spectral curves. Employing our experience with the AGT correspondence we will search for a 2D/4D relation for the N=1 SCFTs
in class Sk. From the curves we can identify the 2D CFT symmetry algebra and its representations, namely the conformal blocks of the
Virasoro/W-algebra, that underlie the 2D theory and reproduce the spectral curves of the N = 1 SCFTs. These conformal blocks give a prediction for the instanton partition functions of the 4D N = 1 SCFTs
of class Sk. Finally, we will present a completely independent, elliptic genus calculation, counting open string states on Dp/D(p-4) brane systems in type IIB string theory, which exactly reproduces our
previous result for the instanton partition functions.

Summary

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