



Department of
Theoretical Physics

Tata-Infosys Lecture Series

Exact results in $N=1$ theories of class S_k

Elli Pomoni

(DESY, Germany)

Date / Time/Venue :

1st Lecture : 6th March, 2019,
11.30 am (A-304, TIFR)

2nd Lecture : 8th March, 2019,
10.00 am (A-304, TIFR)

3rd Lecture : 12th March, 2019,
11.30 am (B-333, TIFR)



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 S_k . 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 S_k . 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.