London Theory Institute
Lectures Series

Prof. Amihay Hanany
“ Branes and the moduli space of instantons ”

Informations
Pre-recorded Lectures : Youtube
Live Tutorial : Monday 16th of November, 10h30

Abstract

Instantons, or solutions to the Self-Dual Yang-Mill's (SDYM) equations are well known solutions, introduced in the mid 70's and played a role in a host of applications in QFT and String Theory. This talk will show a simple brane construction which allows the computation of the moduli space of solutions to the SDYM equations, introduce the student to the world of quivers, and demonstrate simple computations which allow evaluations of these moduli spaces.

Exercices

Students are encouraged to try and solve the exercises by themselves and actively ask questions during the interactive live tutorial where solutions will be presented. The problems are :

1. For the quivers presented in the lecture, write down the vacuum equations for the moduli space of k $U(n)$ instantons.
2. Find the moduli space of 1 $Sp(n)$ instanton. What is it as a geometric space?
3. Compute the dimension of the moduli space of k $SU(n)$ instantons, and generalize from $SU(n)$ to any gauge group.
4. Compute the moduli space of 1 $SO(n)$ insanton.
5. Identify the position modulus in the brane system.
6. Identify the scale modulus in the brane system.

References

Stefano Cremonesi et al. *Coulomb Branch and The Moduli Space of Instantons*. 2014. arXiv: 1408.6835 [hep-th]