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A Systematic Study of Instanton Moduli Spaces

Wednesday 25 September 2013 14:30 (30 minutes)

In this talk, I will present a method for a systematic study of the moduli spaces of Yang-Mills instantons in a simple gauge group. For a classical group, the moduli space can be studied via the ADHM construction, which can be realised from the Lagrangian of a certain quiver gauge theory with 8 supercharges. Such a construction is, however, not available for instantons in exceptional gauge groups and all known string theoretic constructions of the latter so far do not admit a perturbative Lagrangian description. I will demonstrate how to study the moduli spaces in these cases using a partition function that counts holomorphic functions on the moduli space, also known as the Hilbert series. The connections between Hilbert series, Nekrasov's partition functions and superconformal indices will be discussed in detail.

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