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Spectral theory and topological strings

Tuesday, 28 June 2016 14:30 (50 minutes)

I present a conjectural correspondence between topological string theory on toric Calabi-Yau manifolds, and the spectral theory of certain trace class operators on the real line, in the spirit of large N dualities. The operators are obtained by quantization of the algebraic curves which define the mirror manifolds to the Calabi-Yau's. This conjecture can be regarded as a non-perturbative definition of topological string theory on these backgrounds. It gives precise and explicit predictions for the Fredholm determinants of the corresponding operators, providing in this way a new class of exactly solvable problems in spectral theory. In addition, it leads to exact quantization conditions for cluster integrable systems. For a review see [ArXiv:1506.07757]

Summary

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