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SU(N) geometries and topological string amplitudes. (English) Zbl 1101.81088

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Summary: It has been conjectured recently that the field theory limit of the topological string partition functions, including all higher genus contributions, for the family of CY3-folds giving rise to $\mathcal{N} = 24D$ SU(N) gauge theory via geometric engineering can be obtained from gauge instanton calculus. We verify this surprising conjecture by calculating the partition functions for such local CYs using diagrammatic techniques inspired by geometric transitions. Determining the Gopakumar-Vafa invariants for these geometries to all orders in the fiber wrappings allows us to take the field theory limit.

MSC:

81T30 String and superstring theories; other extended objects (e.g., branes) in quantum field theory Cited in **46** Documents

81R05 Finite-dimensional groups and algebras motivated by physics and their representations

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