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Strings from Feynman Diagrams

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Over 50 years ago, 't Hooft observed the similarity between the Feynman diagram expansion of a large N gauge theory and the topological expansion of a string theory. The purpose of this talk is to make this idea precise for a protected subsector of the AdS/CFT correspondence. Concretely, we show how the Feynman diagram expansion of correlation functions in N=4 SYM preserving half the supersymmetry can be explicitly recast as a dual sum over closed strings. Each individual Feynman diagram maps on to one worldsheet configuration. The weight of the diagram translates to the exponential of the Nambu-Goto action of the dual string.

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