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Resurgence and non-perturbative topological strings

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The string perturbative series diverges factorially, and it is expected that this behavior is related to the existence of non-perturbative effects due to D-branes. Although these ideas can be made precise in the case of non-critical strings, little is known in other situations. In this talk I summarize recent work showing that, in the case of topological strings on Calabi-Yau manifolds, one can use the theory of resurgence to describe its non-perturbative sectors. The main outcome is that the large order behavior of the genus expansion in topological string theory knows secretly about the spectrum of BPS D-branes on the Calabi-Yau, and non-perturbative amplitudes can be explicitly computed.

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