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The Unified Formulation of Scattering

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In 2003 Witten showed that the leading order of scattering amplitudes in the maximally supersymmetric gauge theory (MSYM) in four dimensions can be computed using a string-like formulation. Amplitudes are correlation functions computed on a punctured Riemann sphere. For many years this phenomenon was thought to be special to MSYM. In 2013, an explosion of string-like formulations were discovered which are now known as CHY formulas. In this talk I will explain the CHY formulation and how it provides a unified description of the S-matrix of theories such as Einstein gravity, Yang-Mills, Dirac-Born-Infeld, the non-linear sigma model and Galileons.

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