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Graviton scattering and differential equations in automorphic forms

Monday, 31 May 2021 21:00 (1h 15m)

Green, Russo, and Vanhove have shown that the scattering amplitude for gravitons (hypothetical particles of gravity represented by massless string states) is closely related to automorphic forms through differential equations. Green, Miller, Russo, Vanhove, Pioline, and K-L have used a variety of methods to solve eigenvalue problems for the invariant Laplacian on different moduli spaces to compute the coefficients of the scattering amplitude of four gravitons. We will examine two methods for solving the most complicated of these differential equations on $SL_2(\mathbb{Z})\backslash\mathfrak{H}$. Time permitting, we will discuss recent work with S. Miller to improve upon his original method for solving this equation.

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