行政院國家科學委員會專題研究計畫　期中進度報告

弦的時空對稱及其高能極限(1/3)

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A 期中報告

We study bosonic closed string scattering amplitudes in the high-energy limit. We find that the methods of decoupling of high-energy zero-norm states and the high-energy Virasoro constraints, which were adopted in the previous works to calculate the ratios among high-energy open string scattering amplitudes of different string states, persist for the case of closed string. However, we clarify the previous saddle-point calculation for high-energy open string scattering amplitudes and claim that only (t,u) channel of the amplitudes is suitable for saddle-point calculation. We then discuss three evidences to show that saddle-point calculation for high-energy closed string scattering amplitudes is not reliable. By using the relation of tree-level closed and open string scattering amplitudes of Kawai, Lewellen and Tye (KLT), we calculate the high-energy closed string scattering amplitudes for arbitrary mass levels. For the case of high-energy closed string four-tachyon amplitude, our result differs from the previous one of Gross and Mende, which is NOT consistent with KLT formula, by an oscillating factor.

B 申請變更 95 年度之專題計畫內容

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