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High Energy Physics - Theory

Non-geometric Fluxes, Asymmetric Strings and Nonassociative Geometry

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We study closed bosonic strings propagating both in a flat background with constant H-flux and in its T-dual configurations. We define a conformal field theory capturing linear effects in the flux and compute scattering amplitudes of tachyons, where the Rogers dilogarithm plays a prominent role. For the scattering of four tachyons, a fluxed version of the Virasoro-Shapiro amplitude is derived and its pole structure is analyzed. In the case of an R-flux background obtained after three T-dualities, we find indications for a nonassociative target-space structure which can be described in terms of a deformed tri-product. Remarkably, this product is compatible with crossing symmetry of conformal correlation functions. We finally argue that the R-flux background flows to an asymmetric CFT.

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