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Susy-breaking deformations of stable IIB background

Type IIB S-folds of the form $\text{AdS}_4 \times S^1 \times S^5$ have been shown to contain axion-like deformations parameterising flat directions in the 4D scalar potential and corresponding to marginal deformations of the dual S-fold CFT's. In this talk we present a group-theoretical characterisation of such flat deformations and provide a 5D interpretation thereof in terms of $\mathfrak{so}(6)$ -valued duality twists related Cremmer-Scherk-Schwarz flat gaugings in 5D SUGRA. We establish the existence of two flat deformations for the $\mathcal{N} = 4$ and $\text{SO}(4)$ symmetric S-fold causing a symmetry breaking down to its $\text{U}(1)^2$ Cartan subgroup. The result is a new two-parameter family of non-supersymmetric S-folds which are perturbatively stable at the lower-dimensional supergravity level, thus providing the first examples of such type IIB backgrounds. We will explore uplift of such solutions to IIB. This is based on Arxiv:2109.06032 and Arxiv:2103.12652.

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