

Conditions for O-plane unsmearing from second-order perturbation theory

Tuesday, 25 June 2024 15:00 (15 minutes)

Scale-separated AdS compactifications of string theory can be constructed at the two-derivative supergravity level in the presence of smeared orientifold planes. The “unsmearing” corrections are known to leading order in the large volume, weak coupling limit. However, first-order perturbative approximations of non-linear problems can often produce spurious solutions, which are only weeded out by additional consistency conditions imposed by higher-order terms. In this talk, we revisit the “unsmearing” procedure and present consistency conditions obtained at second order, which can be written as integral constraints on various non-linear combinations of the first order corrections. We will then describe when and how these constraints can be satisfied and discuss the implications for the consistency of scale-separated AdS compactifications.

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Session Classification: Parallel session