

Rethinking Quantum Field Theory



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**Rethinking
Quantum Field Theory**

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Classification of maximally supersymmetric backgrounds in supergravity theories

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We study maximally supersymmetric solutions of all gauged or deformed supergravity theories in $D \geq 3$ space-time dimensions. For vanishing background fluxes the space-time background has to be either Minkowski or anti-de Sitter. We derive a simple criterion for the existence of solutions with non-trivial fluxes and determine all supergravities that satisfy it. We show that their solutions coincide with those of the corresponding ungauged theories and conclude that the known list of maximally supersymmetric solutions is exhaustive.

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