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## Supersymmetric Casimir energy

The vacuum energy  $E_0$  of a four-dimensional quantum field theory placed on a curved manifold is in general a scheme-dependent quantity, subject to ambiguities. However, in the presence of supersymmetry one can show that the ambiguities disappear and  $E_0$  becomes a physical observable. I will discuss the computation of  $E_0$  for any  $\mathcal{N} = 1$  theory (with an *R*-symmetry) on a deformed three-sphere using various approaches, including supersymmetric localization and holography.