Metastable vacua in perturbed Seiberg–Witten theories

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Abstract

We show that, for a generic choice of a point on the Coulomb branch of any $\mathcal{N} = 2$ supersymmetric gauge theory, it is possible to find a superpotential perturbation which generates a metastable vacuum at the point. For theories with SU(N) gauge group, such a superpotential can be expressed as a sum of single-trace terms for $N = 2$ and 3. If the metastable point is chosen at the origin of the moduli space, we can show that the superpotential can be a single-trace operator for any N. In both cases, the superpotential is a polynomial of degree $3N$ of the vector multiplet scalar field.

1 Introduction

Since the discovery of metastable vacua in massive supersymmetric quantum chromodynamics (SQCD) in [**1**], supersymmetry breaking at metastable