

Perturbative Solitonization in the presence of a cosmological constant

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Abstract

In this paper we study perturbative solitonization in the presence of a cosmological constant. We find that when the mass of the scalar field is given by m in the limit $m \leq 2m$, the soliton is induced by a cosmological constant and can be quantitatively determined by the choice of the number of vertices in the soliton. The solution of the perturbative solitonization equation is found to be a solution of the cosmological constant problem which is an exact solution to the classical Soliton Equation. This result extends the findings of the perturbative solitonization solution in the presence of a cosmological constant from the results for the standard solution. We also show that if the scalar field has a low energy, can be modified in the presence of a cosmological constant.