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Gravity Localization in Non-minimally Coupled Scalar Thick Brane Worlds with a Gauss-Bonnet Term.

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Abstract content

We consider a five-dimensional thick braneworld with a warped four-dimensional Poincaré invariant space-time in the framework of scalar matter non-minimally coupled to gravity plus a Gauss-Bonnet term in the bulk. Scalar field and higher curvature corrections to the background equations as well as the perturbed equations are shown. A relationship between 4-dimensional and 5-dimensional Planck masses is studied in general terms. By imposing finiteness of the four-dimensional Planck mass and regularity of the geometry, the localization properties of the tensor modes of the first order perturbed geometry are analized for an important class of solutions motivated by models with scalar fields which are minimally coupled to gravity. In order to study the localization properties for this model, the normalizability condition for the lowest levels of the tensor fluctuations are analized. We also show an example of the above "general" analysis: we study the localization properties of a model with asymptotically AdS_{5} geometry.

Summary

Primary author(s) : Mr. DAGOBERTO, Malagon (IFM-UMSNH)

Co-author(s) : Dr. ALFREDO, Herrera (IFM-UMSNH); Dr. ISRAEL, Quiros (Universidad de Guanajuato.)

Presenter(s) : Mr. DAGOBERTO, Malagon (IFM-UMSNH)

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