Compact Scalar Objects in Ricci-based Modified Gravity Theories

Victor I. Afonso,[1] Gonzalo J. Olmo,[2] Emanuele Orazi,[3] and Diego Rubiera-Garcia[4]

[1] *Unidade Acadêmica de Física, Universidade Federal de Campina Grande, Campina Grande, PB, Brazil*

[2] *Departamento de Física Teórica and IFIC, Centro Mixto Universidad de Valencia - CSIC. Universidad de Valencia, Burjassot, Valencia, Spain*

[3] *International Institute of Physics, Federal University of Rio Grande do Norte, Natal-RN, Brazil*

[4] *Departamento de Física Teórica, Universidad Complutense de Madrid, Madrid, Spain.*

Abstract

In this talk we present some exact analytical solutions for self-gravitating free scalar fields obtained by implementing a new solution-generating method developed within the framework of metric-affine Ricci-based gravity theories (RBG's). One of these solutions suggests a new kind of black hole mimicker consisting of a thin shell object whose external field resembles the Scharzschild solution but supported by an internal constant, negative energy density.