De *Madrid* al *Cosmos*

Low-energy effects in super-renormalizable gravity models

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Abstract: Local gravitational theories with more than four derivatives have remarkable quantum properties. Namely, they are super-renormalizable and may be unitary in the Lee-Wick sense, if the massive poles of the propagator are complex. It is important, therefore, to explore also the IR limit of these theories and identify observable signatures of the higher derivatives. In this talk we present recent results in this direction. Specifically, we discuss the viability of a gravitational seesaw-like mechanism, which could be a mean of avoiding the Planck suppression of the higher derivatives' effects. Also, we show that the modified Newtonian potential in these theories is always a real quantity, besides being regular at the origin, even if complex poles are allowed in the propagator. Finally, we consider the bending of light within the general six-derivative model and discuss the possibility of the experimental detection of higher derivatives through a frequency-dependent gravitational scattering.

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Ciclo de seminarios organizado conjuntamente por los grupos
· *Teorías Efectivas en Física Moderna* (UCM)
· *Gravitación y Cosmología* (IEM-CSIC)
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