

SEMINARIO
Departamentos de Física Teórica I y II
Universidad Complutense de Madrid

CONFERENCIANTE: Miguel Zumalacárregui

Universidad de Heidelberg, Alemania

TITULO: Transforming Gravity: Islands of Stability beyond the Land of Horndeski

LUGAR: FACULTAD DE CIENCIAS FÍSICAS UCM

DÍA: 21 de mayo, 2014 (Miércoles)

HORA: 14:30

AULA: Seminario Depto. Física Teórica I, Planta 3ª

ABSTRACT:

Horndeski's theory of gravity has recently attracted considerable attention as the most general, physically reasonable scalar-tensor theory. I will challenge this assumption by considering derivative couplings to matter of both the conformal and disformal type, which have second order field equations and hence represent a genuine extension of the Horndeski Lagrangian. The study of the Jacobian for the metric transformation between the Einstein and Jordan frames allows one to determine certain viability conditions on the form of the metric, related with the existence of such transformation. Although the Jordan-frame version of the theory does not belong to the Horndeski Lagrangian, projecting the metric equations along the eigenvector of the Jacobian allows one to write down dynamical equations with only second or lower derivatives. This feature signals a loophole in Horndeski's Theorem and enlarges the set of (potentially) viable scalar-tensor theories.