

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

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TITULO: Semiclassical Palatini geons at particle accelerators.

LUGAR: FACULTAD DE CIENCIAS FÍSICAS UCM

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ABSTRACT

Relaxing the Riemannian condition on the affine connection offers new avenues to explore extensions of general relativity (GR) at high energies. Following that basic idea, we consider charged black hole solutions in a quadratic extension of the Palatini version of GR. We find that all such objects can be seen as geons consisting on a wormhole supported by the electromagnetic field. In the lowest part of the charge and mass spectrum, the event horizon may disappear yielding a non-singular and topologically stable object. Such configurations can be naturally seen as black hole remnants. Nonlinear corrections in the electromagnetic sector can lower the mass spectrum of these objects down to the TeV scale, thus bringing Planck scale physics within the reach of particle accelerators in a purely four-dimensional scenario. This construction offers a new window on quantum gravity phenomenology.