Proca seminars series



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Black holes solutions in metric-affine gravity with dynamical torsion and nonmetricity

Thursday 8 September 2022 11:00 (1h 30m)

In this talk, I will introduce and explain the geometrical role of torsion and nonmetricity tensor by considering post-Riemannian manifolds to construct theories of gravity. Then the trinity of gravity will be presented. After that, I will discuss a gravitational model which allows the independent dynamical behaviour of the torsion and nonmetricity fields to be displayed in the framework of Metric-Affine gauge theory of gravity. It will be shown that it is possible to construct exact black hole solutions within this theory. Particularly, I will show the first known isolated gravitational spherically symmetric system characterized by a metric tensor with independent spin and dilation charges. Finally, I will show a new axially symmetric solution in our theory which describes a Plebansky-Damiansky type D black hole solution valid in the decoupling limit between the orbital and the spin angular momentum.

Presenter: Dr BAHAMONDE, Sebastian (Tokyo Institute of Technology, Japan)