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Black holes and neutron stars in entangled relativity

Entangled relativity is a new general theory of relativity that is free of any new parameter at the classical level. It is based on the same principles as general relativity, has the same fields and number of dimensions, but it changes the way spacetime and matter interact with each other, in a way that avoids the possibility of defining the theory of relativity without defining matter and the same time. In other words, unlike in general relativity, gravity and inertia cannot be defined without defining matter in the first place. In this talk, I shall present recent results on spherically charged black holes, as well as neutron stars within this new framework. While astrophysical black holes are argued to be indistinguishable from the ones of general relativity, neutron stars can be slightly more massive than in general relativity. It is noteworthy that these results are parameter free.

Primary author: MINAZZOLI, Olivier (Observatoire de la Côte d'Azur, Nice, France)

Presenter: MINAZZOLI, Olivier (Observatoire de la Côte d'Azur, Nice, France)