



GRAVITY: CHALLENGES BEYOND GENERAL RELATIVITY

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Shine-through-the-horizon (and some thoughts on dynamics of massive fields)

Wednesday, 22 May 2024 09:45 (1 hour)

Precision gravitational-wave astronomy is under way, able to probe strong-field gravity to unprecedented levels. Which is the correct description of gravity, and of the matter content of the universe? I will not answer these questions, but will discuss some of the smoking-guns for the simplest extensions of General Relativity and of the Standard Model, in the context of black hole physics: new massive degrees of freedom. I will discuss the status of superradiant constraints on massive fields, and show how energy extraction occurs naturally in the presence of multiple propagation speeds. Finally, I will argue that current constraints on massive gravitons must take into account new polarization states, and discuss how effectively massive fields affect black hole relaxation.

Presenter: CARDOSO, Vitor