Contribution ID: **76** Type: **Overview talk**

New prospects in numerical relativity

Tuesday 12 November 2019 09:30 (30 minutes)

Both observations and deeply theoretical considerations indicate that general relativity, our elegant standard model of gravity, requires modifications at high curvatures scales. Candidate theories of quantum gravity, in their low-energy limit, typically predict couplings to additional fields or extensions that involve higher curvature terms.

At the same time, the breakthrough discovery of gravitational waves has opened a new channel to probe gravity in its most extreme, nonlinear regime. Modelling the expected gravitational radiation in these extensions of GR enables us to search for – or place novel observational bounds on – deviations from our standard model. In this talk I will give an overview of the recent progress on simulating binary collisions in these situations.

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Session Classification: Overview talks