

## Extreme mass-ratio inspirals to probe modified gravitational-wave propagation and $\Lambda$ CDM

*lundi 20 novembre 2023 16:20 (15 minutes)*

Extreme mass-ratio inspirals (EMRIs) are one of the most important sources of gravitational waves (GWs) that will be detected by LISA. Similar to compact binary mergers detected by current GW detectors, EMRIs can be used as cosmic rulers to probe the expansion of the Universe and our current cosmological paradigm, the  $\Lambda$ CDM model. Modified gravity theories can affect the propagation of GWs over cosmological distances, with modifications that can be parametrised in terms of phenomenological parameters that can be constrained with GW observations. In this talk, I will discuss what Bayesian constraints can be placed on a common phenomenological parametrisation for General Relativity deviations using the loudest EMRIs detected by LISA as dark standard sirens in combination with a simulated galaxy catalogue.

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**Classification de Session:** Session 3