

Tests of the nature of black holes with gravitational waves

Wednesday, 25 October 2023 12:15 (30 minutes)

Gravitational waves open the possibility to investigate the nature of compact objects and probe the existence of horizons in black holes. This is of particular interest given some quantum-gravity models which predict the presence of horizonless and singularity-free compact objects. Such exotic compact objects can emit a different gravitational-wave signal relative to the black hole case. In this talk, I derive the characteristic oscillation frequencies of horizonless compact objects in the ringdown. Finally, I describe how parametrised tests on general relativity can allow for tests of the black hole paradigm.

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Session Classification: Exotic Compact Objects