

Testing the nature of dark compact objects with gravitational waves

Elisa Maggio, Sapienza University of Rome

Black holes are the most compact objects in the Universe. According to General Relativity, black holes are endowed with an event horizon that hides a singularity where Einstein's theory breaks down.

Recently, gravitational waves opened the possibility to probe the existence of horizons and investigate the nature of compact objects. This is of particular interest in view of some quantum-gravity models which predict the existence of horizonless dark compact objects that overcome the paradoxes associated to black holes. Such dark compact objects can emit a modified gravitational wave signal with respect to the black hole case and late-time gravitational wave echoes as characteristic fingerprints.

In this talk, I overview the phenomenology of dark compact objects and their observational evidence with current and future experiments.