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Testing the no-hair theorem with LIGO and Virgo

Thursday, January 16, 2020 9:15 AM (45 minutes)

Gravitational waves may allow us to experimentally probe the structure of black holes, with important implications for fundamental physics. One of the most promising ways to do so is by studying the spectrum of quasinormal modes emitted by the remnant from a binary black hole merger. This program, known as black hole spectroscopy, could allow us to test general relativity and the nature of black holes, including the no-hair theorem—the statement that astrophysical black holes are fully described by their mass and spin according to the Kerr metric. I will discuss the prospects for carrying this out with existing ground-based detectors by relying on the shortest-lived tones of the dominant quadrupolar mode (aka 'overtones'), as well as our recent results from the analysis of GW150914.

Presenter: ISI, Maximiliano

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