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Tania Regimbau: ”The quest for the Gravitational-Wave Stochastic Background with Advanced LIGO and Advanced Virgo”

Thursday, 14 November 2019 10:30 (1 hour)

A primary target for gravitational wave astronomy is the detection of a stochastic background formed by the superposition of many unresolved independent sources at different stages of the evolution of the Universe. The recent observations of the merger of two black holes and also two neutron stars imply that the contribution of unresolved binary mergers up to a redshift of 20 may be detectable by Advanced LIGO and Advanced Virgo in the coming years
In this talk, I will give an overview of the different sources creating the stochastic gravitational-wave background, in particular the background from compact binary mergers, and I will introduce the data analysis methods used in the LIGO/Virgo collaboration to measure it. I will then present upper limits obtained by Advanced LIGO and Advanced Virgo in the most recent observing runs. I will also discuss how the future generation of detectors can be used to remove the astrophysical contribution in order to observe the signal of cosmological origin.

Summary