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Stochastic gravitational-wave background

Friday 27 September 2019 11:00 (35 minutes)

The stochastic gravitational-wave background (SGWB) is formed from the incoherent superposition of many GW sources throughout cosmic history. I will briefly summarise the astrophysical and cosmological sources that contribute to the SGWB and the ongoing searches by cross-correlating data between multiple GW detectors. I will review the current limits on the SGWB and the consequences for theoretical models. I will then discuss the anisotropies in the astrophysical GW background, and their relevance in providing new information about galaxy clustering and large-scale structure. Finally, I will emphasise that this information is obscured by shot noise, caused by the finite number of GW sources that contribute to the background at any given time and then present a new method for estimating the angular spectrum of anisotropies, based on the principle of combining statistically-independent data segments.

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