

Searching for the full symphony of binary black holes

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ABSTRACT

The discovery of the gravitational wave signals GW150914 and GW151226 has open the era of gravitational wave astronomy [1, 2]. The source of both signals were identified as binary black holes with mass ratio $q < 3$ and a total mass below $100M_{\odot}$. Furthermore, a search for heavier systems recently reported no detections [3]. Current searches for binary black holes omit the so called higher order modes, focusing only on the identification of the dominant mode of the emitted gravitational waves. In this talk I will present a search for binary black holes that considers all the modes of the emitted radiation. This is crucial in order to detect more exotic sources than the ones LIGO has currently detected: large mass ratio and intermediate mass binary black holes [4].

References

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