

Abstract Submitted
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Christodoulou Memory of GW150914 - Prospects of Detection in LIGO and Future Detectors AARON JOHNSON, University of Arkansas - Fayetteville, SHASVATH KAPADIA, University of Wisconsin - Milwaukee, DANIEL KENNEFICK, University of Arkansas - Fayetteville — The event GW150914 produced strains of the order 10^{-21} in the two instruments comprising the Laser Interferometric Gravitational Wave Observatory (LIGO). The event has been interpreted as originating in a coalescing black hole binary, with individual components of about 30 solar masses each. A striking aspect of the coalescence deduced from the signal is the emission of 3 solar masses of energy in the oscillating gravitational wave. Theory predicts a DC component of the gravitational signal associated with the emission of such large amounts of gravitational wave energy known as the Christodoulou memory. The memory, as a non-linear component of the signal, is expected to be an order of magnitude smaller than the amplitude of the primary AC component of the gravitational waves. We discuss the prospects of detecting the Christodoulou memory in similar future signals, both with LIGO and with other detectors, including future space-based instruments.

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