

Abstract Submitted
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Binary black hole spectroscopy: a no-hair test of GW190814 and GW190412 COLLIN CAPANO, ALEX NITZ, Max Planck Institute for Gravitational Physics — Gravitational waves provide a window to probe general relativity (GR) under extreme conditions. The recent observations of GW190412 and GW190814 are unique high-mass-ratio mergers that enable the observation of gravitational-wave harmonics beyond the dominant $(\ell, m) = (2, 2)$ mode. Using these events, we search for physics beyond GR by allowing the source parameters measured from the sub-dominant harmonics to deviate from that of the dominant mode. All results are consistent with GR. In particular, we find that the chirp mass inferred from the observable sub-dominant harmonic agrees with general relativity to percent-level precision. I will discuss our methods, results, and prospects for the future.

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