

Abstract Submitted
for the APR21 Meeting of
The American Physical Society

Distinguishing the Nature of the Lighter Compact Object in the Binary Merger GW190814 PHILIPPE LANDRY, California State University, Fullerton, REED ESSICK, University of Chicago — The third LIGO-Virgo observing run turned up the first gravitational-wave observation of a compact object from the mass gap between known neutron stars and known black holes. With a mass of approximately $2.6 M_{\odot}$, the nature of the secondary component of the compact binary merger GW190814 is unclear. Accounting for current uncertainty in the maximum neutron star mass and making reasonable assumptions about the compact-object mass distribution, we argue based on a hierarchical Bayesian analysis that the merger's secondary component is the lightest black hole observed to date, rather than an exceptionally massive neutron star.

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Date submitted: 08 Jan 2021

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