

DNP20-2020-000306

Abstract for an Invited Paper  
for the DNP20 Meeting of  
the American Physical Society

**Recent astrophysical observations of gravitational waves and some implications<sup>1</sup>**

JOSEPH A. GIAIME<sup>2</sup>, LIGO Livingston - Caltech and LSU

The Laser Interferometer Gravitational-wave Observatory (LIGO) detectors in Livingston, Louisiana, and Hanford, Washington, USA, and the Virgo detector in Italy, after decades of development and recent upgrades, have completed three observational runs in recent years. We have observed waves emitted during the inspiral and coalescence of pairs of black holes and neutron stars and have exchanged low-latency alerts with other astrophysical messengers. LIGO's detector technology and recent runs will be summarized, together with select observational results and some implications.

<sup>1</sup>This work is funded in part by NSF award PHY-1764464

<sup>2</sup>on behalf of the LIGO Scientific Collaboration