GW170608 FACTSHEET

Images: time-frequency traces (top), mass distributions (bottom right)

GW=gravitational wave, $M_\odot=1$ solar mass=$2\times10^{30}$ kg,
$am=attometer$ ($10^{-18}$ m), H/L=LIGO Hanford/Livingston

Parameter ranges are 90% credible intervals.

†90% credible region

---

observed by H, L
source type black hole (BH) binary
date 08 June 2017
time of merger 02:01:16 UTC
signal-to-noise ratio 13
false alarm rate < 1 in 3 000 years
distance 0.7 to 1.5 billion light-years
redshift 0.04 to 0.1
total mass 18 to 24 $M_\odot$
primary BH mass 9 to 19 $M_\odot$
secondary BH mass 5 to 9 $M_\odot$
mass ratio 0.3 to 1.0
remnant BH mass 17 to 23 $M_\odot$
remnant BH spin 0.64 to 0.72
remnant size (effective radius) 47 to 63 km
remnant area $2.7 \times 10^4$ km$^2$
effective spin parameter -0.01 to 0.30
effective precession spin parameter unconstrained
peak GW luminosity $1.8 \times 3.9 \times 10^{56}$ erg s$^{-1}$
radiated GW energy 0.68 to 0.91 $M_\odot c^2$
duration from 30 Hz ~ 2 s
# of GW cycles from 30 Hz ~ 100
signal arrival time delay arrived at H ~ 7 ms before L
HL sky area† ~ 520 deg$^2$
peak GW strain ($10^{-22}$) ~ 4 (H), 3 (L)
peak stretch of interferometer arm ~ ± 0.8 am (H), 0.6 am (L)
frequency at peak GW strain 453 to 610 Hz
wavelength at peak GW strain 492 to 662 km
remnant ringdown frequency 745 to 1013 Hz
remnant damping time 1.0 to 1.4 ms
consistent with general relativity? passes all tests performed

Images: