

GW151226: FACTSHEET

BACKGROUND IMAGES: TIME-FREQUENCY TRACE (TOP) AND SIGNAL-TO-NOISE RATIO TIME-SERIES (BOTTOM) IN THE TWO LIGO DETECTORS; EXAMPLE WAVEFORM (MIDDLE)

observed by	LIGO L1, H1	duration from 35 Hz	~1 s
source type	black hole (BH) binary	# cycles from 35 Hz	~55
date	26 Dec 2015	signal arrival time delay	arrived in H1 1 ms after L1
time	03:38:53 UTC		
distance	250 to 620 Mpc	peak GW strain	~ 3.4×10^{-22}
redshift	0.05 to 0.13	peak displacement of interferometers arms	~ ± 0.7 am
signal-to-noise ratio	13		
false alarm prob.	~ 1 in 10 million	frequency/wavelength at peak GW strain	420 Hz, 710 km
Source Masses M_{\odot}		peak speed of BHs	~ 0.6 c
total mass	20 to 28	peak GW luminosity	2 to 4×10^{56} erg s ⁻¹
primary BH	11 to 23	radiated GW energy	0.8-1.1 M_{\odot}
secondary BH	5 to 10	remnant ringdown freq.	~ 750 Hz
remnant BH	19 to 27	remnant damping time	~ 1.3 ms
mass ratio	> 0.28	remnant size, area	60 km, 3.5×10^4 km ²
spin of one of the black holes	> 0.2	online trigger latency	~ 67 s
remnant BH spin	0.7 to 0.8	# offline analysis pipelines	2
resolved to	~850 sq. deg.		

Parameter ranges correspond to 90% credible bounds. Acronyms: L1/H1=LIGO Livingston/Hanford; Mpc=mega parsec=3.2 million lightyear, am=attometer= 10^{-18} m, M_{\odot} =1 solar mass= 2×10^{30} kg

