

## FACT SHEET **GW200105 GW200115**

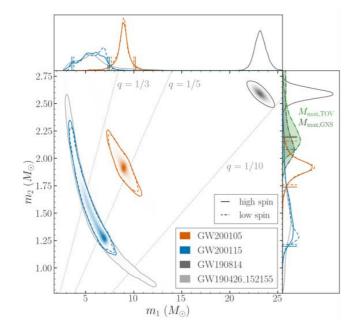
## First observation of neutron star-black hole (NSBH) binaries

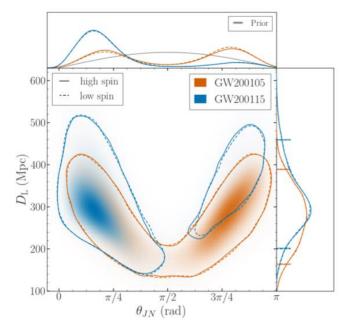
All parameter ranges correspond to 90% credible bounds. Quoted values are for high spin (<0.99) neutron-star priors

	GW200105	GW200115
observed by	LIGO Livingston and Virgo	LIGO Livingston & Hanford and Virgo
date, time	5 Jan 2020, 16:24:26 UTC	15 Jan 2020, 04:23:10 UTC
likely distance	170 to 390 Mpc	200 to 450 Mpc
source redshift	0.04 to 0.08	0.05 to 0.10
signal-to-noise ratio	13.9	11.6
false alarm rate	< 1 in 2.8 yr	< 1 in 100,000 yr
Source masses (M <sub>⊙</sub> )		
total mass	9.7 to 12.0	5.7 to 8.6
primary (BH)	7.4 to 10.1	3.6 to 7.5
secondary (NS)	1.7 to 2.2	1.2 to 2.2
mass ratio	0.18 to 0.30	0.16 to 0.61
BH spin	0.00 to 0.30	0.04 to 0.81
effective inspiral spin	-0.16 to 0.10	-0.54 to 0.04
effective precession spin	0.02 to 0.23	0.04 to 0.51

Inferred merger rate density of NSBH systems\*: 12 to  $120 \text{ yr}^{-1} \text{ Gpc}^{-3}$ 

Images: companion masses (left), distance vs inclination (right), both with low (<0.05) and high (<0.99) spin priors for the neutron stars





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<sup>\*</sup> Assuming GW200105 and GW200115 are representative of the NSBH population