Table 1: Intrinsic parameters of the simulation (at $t = 0$). Q, MNS, m_0, $\Omega_{22,0}$, $i_{\rm tilt}$ and χ_i $(i = x, y, z)$ denote the mass ratio, the NS mass, the total mass in the isolation, the angular frequency of the $(l, m) = (2, 2)$ gravitational waves observed from the direction of the maximum emission, the spin orientation is defined by the angle between the black–hole spin and the direction of the maximum emission, and the components of the dimensionless spin, respectively.

Model	Q	$M_{\rm NS}$ [$M_\odot$]	m_0 [$M_\odot$]	EoS	$m_0\Omega_{22,0}$	$i_{\rm tilt}$ [rad.]	χ_x	χ_y	χ_z
APR4i30N48	5	1.35	8.1	APR4	0.0734	0.54	0.16	0.35	0.64
APR4i60N60	5	1.35	8.1	APR4	0.0719	1.05	0.30	0.58	0.37
APR4i90N60	5	1.35	8.1	APR4	0.0713	1.57	0.39	0.64	0.00
ALF2i30N60	5	1.35	8.1	ALF2	0.0732	0.54	0.16	0.35	0.64
ALF2i60N60	5	1.35	8.1	ALF2	0.0721	1.05	0.30	0.58	0.37
ALF2i90N60	5	1.35	8.1	ALF2	0.0718	1.57	0.40	0.63	0.00
H4i30N60	5	1.35	8.1	H4	0.0737	0.53	0.16	0.35	0.65
H4i60N60	5	1.35	8.1	H4	0.0723	1.05	0.30	0.57	0.38
H4i90N60	5	1.35	8.1	H4	0.0719	1.57	0.40	0.63	0.00
MS1i30N48	5	1.35	8.1	MS1	0.0754	0.53	0.16	0.35	0.65
MS1i60N60	5	1.35	8.1	MS1	0.0724	1.05	0.30	0.57	0.38
MS1i90N60	5	1.35	8.1	MS1	0.0718	1.57	0.40	0.63	0.00

Data files in "gwf_J/" are the $l = 2$ waveforms in the frame that the initial total angular momentum agrees with the z–axis of the simulation. Data files in "gwf_Z/" are the $l = 2$ waveforms in the frame that the direction of the maximum emission at $t = 0$ agrees with the z–axis and the initial separation vector from the NS to the BH is aligned in the xz –plane. We note that the separation vector are not completely aligned with the x–axis but has small amount of z–component since the maximal radiation direction is not always perpendicular to the separation vector.

The first, second and third column in each data file denote the time normalized by m_0, the real part of Dh_{lm}/m_0, and the imaginary part of Dh_{lm}/m_0, respectively.

Table 2: The key quantities for piecewise polytropic EOSs [J. Read et. al 2009] which we employ in the simulations. P_2 is the pressure at $\rho = \rho_2$ shown in the unit of dyne/cm^2, Γ_i is the adiabatic index for each piecewise polytrope, and $M_{\rm max}$ is the maximum mass of the spherical NS for a given EOS. $R_{1.35}$, $\rho_{1.35}$, $M_{*,1.35}$, and $\mathcal{C}_{1.35}$ are the radius, the central rest-mass density, the baryon rest mass, and the compactness parameter for the NS with $M_{\rm NS} = 1.35 M_\odot$, respectively.

Model	$\log_{10}P_2$	Γ_2	Γ_3	Γ_4	$M_{\rm max}[M_\odot]$	$R_{1.35}$[km]	$\rho_{1.35}$[g/cm^3]	$M_{*,1.35}[M_\odot]$	$\mathcal{C}_{1.35}$
APR4	34.269	2.830	3.445	3.348	2.20	11.1	8.9×10^{14}	1.50	0.180
ALF2	34.616	4.070	2.411	1.890	1.99	12.4	6.4×10^{14}	1.49	0.161
H4	34.669	2.909	2.246	2.144	2.03	13.6	5.5×10^{14}	1.47	0.147
MS1	34.858	3.224	3.033	1.325	2.77	14.4	4.2×10^{14}	1.46	0.138