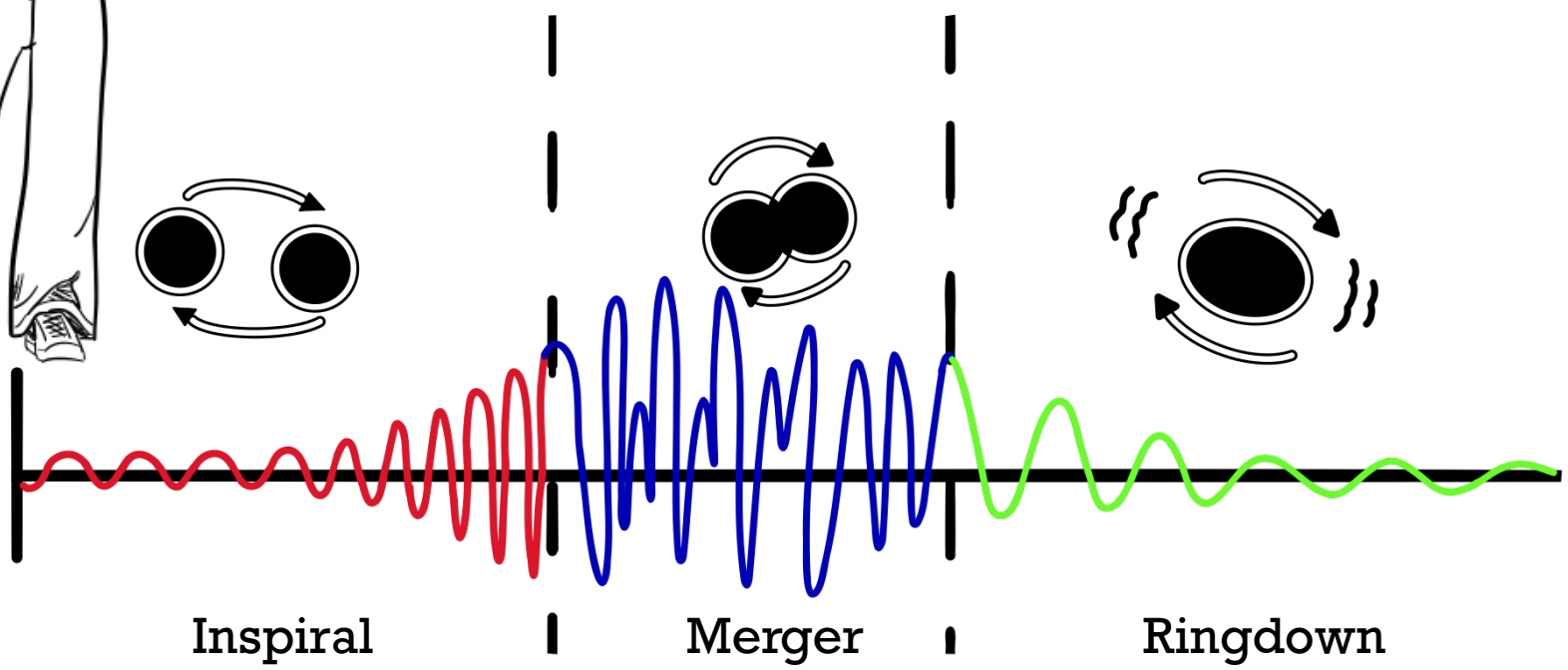
The pattern of ripples or distortions in spacetime caused by a GW is called a waveform.

The shape and characteristics of a gravitational waveform can reveal details about the wave's source, including the masses of the objects involved, their orbital dynamics, and the moment of collision.



By computationally dividing spacetime into minor grid points and solving Einstein's equations at each point, we can simulate the evolution of gravitational fields through a process known as Numerical Relativity (NR).

NR-simulated waveforms are like the gold standard—they match actual GW detector data better than anything else.

In fact, most other waveform models used in GW data analysis are fine-tuned using NR waveforms as their guide!