

Stellar black hole mergers as probes of cosmic chemical evolution

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The gravitational waves we observe today come from merging black holes that have formed throughout the entire Universe.

Their population properties encode valuable information about how stars form and evolve in galaxies very different from our own. They are also sensitive to, and can shed light on, the uncertain early history of element production in our Universe.

I will discuss the current empirical constraints on the low-metallicity cosmic star formation history and the implications for GW astrophysics with BBH mergers.

In the era of next generation GW detectors, the population properties of these mergers could potentially be used to complement electromagnetic studies of the chemical evolution of galaxies. I will discuss this emerging possibility in my talk.

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