

Model-agnostic inference of gravitational waves from core collapse-supernovae

Gravitational waves from core-collapse supernovae remain one of the most promising, but as yet undetected, sources for LIGO, Virgo, and KAGRA. Confidently reconstructing a supernova waveform, or inferring key signal properties, could provide critical insight into the explosion mechanism. This task remains challenging however due to the wide range of possible signal morphologies. In this talk, I will present a Bayesian approach for reconstructing transient gravitational-wave signals with minimal assumptions about their waveform structure. I will show results demonstrating how well this method recovers simulated signals based on current supernova models at various distances. I will also discuss how to refine the reconstruction methods specifically for supernovae, while remaining flexible enough to capture a broad range of potential signal features.

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