

Measuring the core-collapse supernova(CCSN) engine dynamics with GWs

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Core-collapse supernovae (CCSNe) are among the most energetic astrophysical phenomena. The next Galactic CCSN will be a landmark event and Gravitational Waves (GWs) from this CCSN will offer an unique opportunity to study the explosion dynamics in detail. In this poster, we will present the development of a method for the model-independent Coherent WaveBurst (cWB) algorithm to estimate GW energy and luminosity from CCSNe. Estimating the GW energy evolution may provide insight into the explosion dynamics, constrains progenitor properties such as rotation, asymmetries, stiffness of core and also offers a way to test theoretical models against observational data. This method may help in interpreting future CCSNe GW signals and advance our understanding of the core-collapse supernova mechanism.

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