

Low-Frequency Gravitational Waves from Core-Collapse Supernovae: Theory and Detection Prospects

Monday 21 July 2025 15:00 (20 minutes)

The low-frequency contribution to gravitational wave signals from core-collapse supernovae has often been overlooked due to the rapid increase in the LIGO noise floor at 10 Hz, but recent studies have illuminated the rich content of core-collapse supernova gravitational wave emission in this frequency range and the exciting prospects for its detection. Here, I will present a brief review of these past studies. I will also present our methodology for the detection of core-collapse supernova gravitational wave memory, utilizing matched filtering, as well as the low-frequency gravitational wave emission sourced from both the matter and the anisotropic neutrino emission in the three-dimensional models of the CHIMERA group, associated with the most recent release of gravitational wave data from that group.

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Session Classification: Theory