

GRAVITATIONAL WAVE AFTERGLOW OF STELLAR COLLAPSE IN MASSIVE SCALAR-TENSOR GRAVITY

Stellar collapse in massive scalar-gravity generates a characteristic "inverse chirp" gravitational wave signal in the form of a quasi-monochromatic breathing mode that can last for years or even centuries. This gravitational-wave afterglow could be detected in LIGO-Virgo observations directed at historical supernovae, and allows for unprecedented constraints or identification of this class of modified theories of gravity. In this talk we present numerical simulations to demonstrate the extreme robustness of the gravitational-wave signals under variations of the parameters of the theory, the stellar progenitor model and the equation of state.