

Energy budget of cosmological first-order phase transition

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The energy budget of cosmological first-order phase transition is essential for the gravitational wave spectra. Most of the previous studies are based on the bag model with same sound velocity in the symmetric and broken phase. We study the energy budget and the corresponding gravitational wave spectra beyond the bag model, where the sound velocities could be different in the symmetric and broken phase. Taking the Higgs sextic effective model as a representative model, we calculate the sound velocities in different phase, the gravitational wave spectra, and the signal-to-noise ratio for different combinations of phase transition parameters beyond the bag model. We compare these new results with the ones obtained from the bag model. The proper sound velocities and phase transition parameters at the appropriate temperature are important to obtain more precise predictions.

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