

Relation between higher-dimensional gauge theories and gravitational waves from first-order phase transitions

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In this work, we investigate the relation between higher-dimensional gauge theories and stochastic gravitational wave (GW) spectrums caused by their potential. It is known that the higher-dimensional gauge theories can induce the spontaneous symmetry breaking of the gauge symmetry. If the spontaneous symmetry breaking induces the first-order phase transition, the stochastic GW can be observed in future interferometers. Through our numerical calculations, we reveal that distinctive parameters in the theories, like the compact scale, can change the GW spectrums dynamically. We also discuss the verifiability of the theories through the GW observations.

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