

Phenomenology 2021 Symposium



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Influence of asymmetry of potential on stability of domain walls

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We study the evolution of cosmological domain walls in models with asymmetric potentials. Our research goes beyond the standard case of spontaneous breaking of an approximate symmetry. The time after which the network will decay depends on the difference of values of the potential in minima, its asymmetry around the maximum separating minima and the bias of initial distribution. Using numerical lattice simulations we determine relative importance of these factors on decay time of networks for generic potentials. We find that even very small departures from the symmetric case lead to rapid decay of the domain wall network. As a result creation of a long lasting network capable of producing observable gravitational wave signals is much more difficult than previously thought.

Summary

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