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Gravitational waves from cosmological domain walls in the Standard Model with nonrenormalizable operators

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The study of the renormalization group improved effective potential of the Standard Model has revealed the existence of a local maximum at field strengths of the order of 10ˆ10 GeV. If the Standard Model is valid for very high energy scales, then the possibility of the production of cosmological domain walls in the early Universe occurs.

We investigated the dynamics of networks of domain walls using lattice simulations. In our previous research we assumed that the Standard Model is valid up to the Planck scale. Recently we studied scenario in which the Standard Model breaks down at much lower scales using the formalism of Effective Field Theory. A nonrenormalizable operator was included in the Lagrangian density and its impact on evolution of networks of domain walls was investigated. Our recent results will be presented.

Presentation type

Parallel talk

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