

## Studies on Domain Walls, Cosmic strings, and Their Gravitational Wave Signatures

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In various new physics theories, the spontaneous breaking of symmetries can lead to the formation of topological defects, such as domain walls and cosmic strings, in the early universe. The motion and collapse of domain walls, as well as relativistic oscillations of cosmic string loops, can generate significant stochastic gravitational waves, offering a unique opportunity to probe new physics. In one of our recent studies, we consider quantum and thermal corrections to the effective potential and explore their impact on the dynamics of domain walls and the resulting gravitational wave signatures. In another study, we investigate how an early matter-dominated era in cosmic history influences the dynamics of cosmic strings and the gravitational waves they produce.

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