NONRELATIVISTIC CASE OF GRAVITATIONAL LENSING BY SIMPLE COSMIC STRING LOOPS

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S u m m a r y

Cosmic strings are topologically stable, one-dimensional defects in vacuum which can appear during appropriate phase transitions in an adiabatically expanding early Universe which cools down from a very hot initial state. Their discovery would lead to advances in cosmology and fundamental physics. One of the most efficient ways to detect cosmic strings is related to their gravitational lensing signatures which appear to be different from those of standard lenses. We study a simple model of gravitational lensing by symmetric and asymmetric loops. An explicit form of the lens equation is obtained, and the relations for magnification are derived. We also discuss possible observational manifestations of cosmic strings within our model.