

## Searching for Cosmic Strings using data from the third Advanced LIGO-Virgo observing run

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Cosmic string network generically appears in many natural extensions of particle SM. And cosmic strings are one-dimension topological defects which can be formed in grand unified theory scale phase transitions in the early universe and are also predicted to form in the context of string theory. The main mechanism for a network of Nambu-Goto cosmic strings to lose energy is through the production of loops and the subsequent emission of GW, thus offering an experimental signature for the existence of cosmic strings. And the unresolvable GW bursts produced by cosmic strings at different loop scale and cosmic time will overlap with each other and form a stochastic GW background (SGWB). We performed the parameter estimation in three cosmic string models using the third Advanced LIGO-Virgo observation run isotropic stochastic search results. We also consider a new source component in the model, i.e. kink-kink collision, using more realistic model parameters.

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