

Generalization of the Z string and its application

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Recent gravitational wave observations suggest the existence of cosmic strings except stable local strings. Embedded string are candidates of such the string, and the Z string is one of them. We have generalized the Z string for the case of $SU(N) \times U(1)$ gauge theory and found that classical stability of the string only depends on two mass ratios of Higgs and the gauge bosons. We show the application of the formation condition for some models and mention the implications from recent results of gravitational wave observations.

Presenter: KANDA, Yukihiro (Nagoya University)

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