

Topological Charges in Lattice Gauge Theories

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Abstract

Topological configurations in strongly-coupled gauge theories are of interest in many different contexts in theoretical physics. I myself came to be interested in this problem in my works [1,2] on an axionic inflationary model, which provides one of the simplest inflationary models consistent with current observations of the CMB. In order to work out quantitative details of the inflationary model, we need computations in strongly-coupled gauge theories. In this talk I will discuss theoretical and practical challenges in the measurements of topological charges in numerical lattice simulations of Yang-Mills theories, based on my experience in the ongoing collaboration [3].

References

- [1] Y. Nomura, T. Watari and M. Yamazaki, Phys. Lett. B776, 227 (2018)
- [2] Y. Nomura and M. Yamazaki, Phys. Lett. B780, 106 (2018)
- [3] R. Kitano, N. Yamada, M. Masahito, in progress