

Conformal field theory and the hot phase of the three-dimensional U(1) gauge theory

Friday, 13 December 2019 10:30 (15 minutes)

In this talk I will present recent results showing how the high-temperature phase of the compact U(1) gauge theory without matter fields in 2+1 spacetime dimensions can be studied in terms of conformal-field-theory predictions for the low-temperature phase of the XY model in 2 dimensions. The conformally-invariant analytical description of the XY model is compared with numerical results obtained in lattice simulations of the U(1) gauge theory above the critical temperature, in particular for the two-point correlation function of static charges and for the profile of the flux tube: excellent quantitative agreement is found with predictions for the functional forms and for the critical indices.

Primary authors: NADA, Alessandro (DESY Zeuthen); VADACCHINO, Davide (INFN Sezione di Pisa); PANERO, Marco (TO); CASELLE, Michele (TO)

Presenter: NADA, Alessandro (DESY Zeuthen)

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