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Confining strings and glueballs in Z_N gauge theories

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Effective string theory has shown its universal power in the prediction of the spectrum of low-lying excited states of confining strings. In these works we focus on 3d Ising gauge model and vector Z_N gauge theories. We have computed the low-lying confining flux tube spectrum in 3d Ising gauge model and shown that they agree with the prediction of the Nambu-Goto spectrum. Moreover, we observe a massive resonance on the string, which turns out to be the glueball mixing with flux tubes. In the vector Z_N gauge theories (dual to clock spin models), we observe a continuous phase transition for $N \geq 4$, while for $N > 5$ it is governed by O(2) universality class. Also for these cases we observe that they approach the glueball spectrum of U(1) gauge theory.

Topical area

Vacuum Structure and Confinement

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