The Hamiltonian Approach to Yang-Mills (2+1): An Expansion Scheme and Corrections to String Tension

Friday 31 July 2009 14:00 (20 minutes)

We carry out further analysis of the Hamiltonian approach to Yang-Mills theory in 2+1 dimensions which helps to place the calculation of the vacuum wave function and the string tension in the context of a systematic expansion scheme. The solution of the Schrodinger equation is carried out recursively. The computation of correlators is re-expressed in terms of a two-dimensional chiral boson theory. The effective action for this theory is calculated to first order in our expansion scheme and to the fourth order in a kinematic expansion parameter. The resulting corrections to the string tension are shown to be very small, in the range -0.3% to -2.8%, moving our prediction closer to the recent lattice estimates.

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