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Intrinsic width of the flux tube in 2+1 dimensional Yang-Mills theories

We study the profile of the flux tube in non-Abelian gauge theories in the confined phase in 2+1 dimensions, by means of precise lattice numerical simulations. We observe a non-Gaussian profile with prominent exponentially decaying tails. From the characteristic decay length length, we extract the intrinsic width of the flux tube. We compute this scale at different values of the temperature in the confined phase.
At low temperature, the profile of the flux tube is well described by the Clem formula, which has been originally proposed in the context of dual superconductivity models. We compare the value of the intrinsic width extracted from fits assuming the Clem formula with the mass gap of the gauge theory and with the critical distance of the Effective String Theory.
At high temperature, on the other hand, it is possible to predict the profile of the flux tube assuming the Svetitsky-Yaffe mapping. We test this prediction against the numerical data, finding a very good agreement, also in the numerical value of the intrinsic width.

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