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Squared width and profile of the confining fluxtube in the U(1) LGT in 3D

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The dual formulation of the compact U(1) lattice gauge theory in three spacetime dimensions allows to finely study the squared width and the profile of the confining fluxtube on a wide range of physical interquark distances. The results obtained in Montecarlo simulations are compared with the predictions of the effective bosonic-string model and with the dual superconductor model. While the former fails at describing the data from a quantitative point of view, the latter is in good agreement with it. An interpretation of these results is proposed in light of the particular features of the U(1) LGT in 3D and a comparison with non-Abelian gauge theories in four spacetime dimensions is discussed.

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