(2+1)d QED at vanishing temporal lattice spacing

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The rapid development of quantum technologies gives hope for unprecedented physical simulations in the upcoming years. One of them is lattice QCD, which however is computationally too expensive at the moment. This motivates the study of simpler theories resembling its features. One is QED in 2+1 dimensions, showing a confining phase and dynamical mass generation. In this work we present a study of the Hamiltonian limit of this theory, computed in the Lagrangian formalism. As Hamiltonian simulations are presently limited to very small volumes, this is an important step to match the two formalisms. In fact, having a connection point opens the window for the removal of finite volume effects, while exploiting the full potential of Hamiltonian simulations.

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