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# Positivity violation in the quark propagator in Minkowski space

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I discuss results of a recent study on the analytic structure of the quark propagator in Minkowski space. The analytic structure of the quark propagator in Minkowski space is more complex than in Euclidean space due to the possible existence of poles and branch cuts at timelike momenta. Here I discuss a computational method based on the spectral representation of the propagator. The method allows one to handle in exact manner poles and branch cuts in momentum integrals. I will present explicit calculations in a schematic model for the quark-gluon scattering kernel. In particular, I will show that one can obtain positive violation in the propagator's spectral functions that are not necessarily related to the presence of complex-mass poles, a feature that is relevant for interpretation of quark confinement in terms of changes in the analytical structure of propagators.

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