The complex structure of strong interactions in Euclidean and Minkowski space

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The setting sun diagram with complex external momenta

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The issue of analytically continuing Feynman integrals from Euclidean to Minkowski signature is revisited with complex momenta, which become relevant in theories where complex poles are observed. Although this continuation is well-known in terms of the Källén-Lehmann representation, some potential alternative takes, which are equivalent for real momenta, will lead to different results for complex momenta. We present our analysis for the simple case of the setting sun diagram in d=2.

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