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On the non-perturbative structure of correlation functions: from form factors to confinement

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2:15 pm
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Abstract

Local formulations of quantum field theory provide a powerful framework from which to analyse the non-perturbative properties of correlation functions. In this talk I will outline the utility of this approach from two different perspectives: the form factor decomposition of energy-momentum tensor (EMT) matrix elements, and the spectral structure of QCD propagators. For the EMT matrix elements I will discuss the importance of this framework in disentangling model-dependant constraints, and deriving the low-momentum transfer behaviour of form factors for states with arbitrary spin. In the context of the QCD propagators I will outline the relevance of the infrared properties of these objects for understanding both hadron phenomenology and confinement, and report on recent lattice fit results for the gluon propagator.
