

In this doctoral thesis, we study all the relevant two- and three-point Green functions of the chiral currents and densities. Specifically, in the first part of the thesis, we present the leading-order contributions of the QCD condensates up to dimension six to these Green functions, obtained within the framework of the Operator product expansion. These consist of the perturbative contribution followed by the contributions of the quark, gluon, quark-gluon and four-quark condensates.

In the second part, we restrict ourselves to the order parameters of the chiral symmetry breaking in the chiral limit. We investigate them within the Chiral perturbation theory and Resonance chiral theory and, in order to obtain constraints on the parameters of the effective Lagrangians, we require their high-energy behaviour to match OPE. As it turns out, the duplication of the lowest vector, axial-vector, scalar and pseudoscalar resonance multiplets in the corresponding Lagrangians is necessary.

As a special case, we study the $\langle VVP \rangle$ Green function with three vector and three pseudoscalar resonance multiplets taken into account — needless to say, this investigation is performed on an algebraic level only. We also study the correlation of the pion-pole contribution to the muon $g - 2$ factor and the effective parameter $\chi^{(r)}$.