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Vacuum fluctuations of $\bar{q}q$ and values of low-energy constants. (English) Zbl 1050.81712
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Summary: We discuss the influence of the vacuum fluctuations of $\bar{q}q$ pairs on low-energy constants and condensates. The analysis of the Goldstone boson masses and decay constants shows that the three-flavor condensate and some low-energy constants are very sensitive to the value of L_6 , which measures the Zweig-rule violation in the scalar channel. A chiral sum rule based on experimental data in this channel is used to constrain L_6 , confirming a significant decrease between the two- and the three-flavor condensates.

MSC:

81V05 Strong interaction, including quantum chromodynamics

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Keywords:

quark antiquark vacuum fluctuations; low-energy constants; quark antiquark pairs; pions; Goldstone boson masses; Goldstone boson decay constants; three-flavor condensate; Zweig-rule violation; scalar bosons; chiral sum rule; two-flavor condensates; kaons; eta mesons

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