

Using effective lagrangians to study the puzzling scalar mesons and other things

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Abstract content

Summary

A time honored way to investigate the Strong Interactions (i.e. QCD at low energies) is to construct an effective Lagrangian out of low lying physical fields and to constrain it to obey the expected flavor symmetries. We will first briefly review how this approach has been successful in treating low energy pion interactions close to threshold. When going somewhat further above threshold some puzzles emerge. These involve the existence of rather light scalar mesons which, according to the conventional quark model should not be so light. We discuss some work which tries to explain these features using more complicated effective Lagrangians. The work suggests that the light scalars may be examples of mesons which have a large content of two quarks and two antiquarks as opposed to a single quark and single antiquark. Some of this work may have application to the current search for the Higgs particle of the electroweak theory.

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