2005 Vol.44 No.4 pp.665-669 DOI:

Low-Energy $K\pi$ Phase Shifts in Chiral SU(3) Quark Model

HUANG Fei,[1,2] ZHANG Zong-Ye,[1] and YU You-Wen[1]

[1] Institute of High Energy Physics, P.O. Box 918-4, Beijing 100049, China
[2] Graduate School of the Chinese Academy of Sciences, Beijing 100049, China
(Received: 2005-2-24; Revised:)

Abstract: The low-energy region kaon-pion S- and P-wave phase shifts with isospin I=1/2 and I=3/2 are dynamically studied in the chiral SU(3) quark model by solving a resonating group method equation. The model parameters are taken to be the values fitted by the energies of the baryon ground states and the kaon-nucleon elastic scattering phase shifts of different partial waves. As a preliminary study the s-channel $q\bar{q}$ annihilation interactions are not included since they only act in the very short range and are subsequently assumed to be unimportant in the low-energy domain. The numerical results are in qualitative agreement with the experimental data.

PACS: 12.39.-x, 13.75.Lb, 21.45.+v

Key words: $K\pi$ phase shifts, quark model, chiral symmetry

[Full text: PDF]

Close