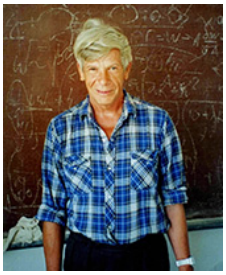

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A constituent multiquark approach to meson resonances as a generalization of Quark Model

Friday, 14 October 2022 16:45 (25 minutes)

A generalization of Quark Model to construction of hadron spectroscopy is suggested. The proposed approach is applied to the case of light nonstrange mesons. By assumption, all such mesons above 1 GeV appear due to creation of constituent quark-antiquark pairs «inside» the pi or rho(omega) mesons. These spin-singlet or triplet pairs dictate the quantum numbers of formed resonance. Basing on the idea of renormalization group invariance of hadron masses, It is argued that the total energy of hadron constituents should be proportional to the hadron mass squared rather than linear mass. This leads to an effective mass counting scheme for meson spectrum. The given approach results in the linear Regge and radial Regge trajectories by construction. An experimental observation of these trajectories may thus serve as an evidence not for string but for multiquark structure of highly excited hadrons.

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