



Contribution ID: 23

Type: **Poster Presentation**

ANALYSIS OF THE PARTICLE MASS SPECTRUM PDG-2016

Lattice-QCD recent results and calculations of Daison-Schwinger equation by C.Roberts et al. allowed to estimate the constituent quark mass M_q about 400 MeV. This is in agreement with the value of 441 MeV in the modern constituent quark model (NRCQM, by L.Glozman et al.) where it is determined as 1/3 of the mass of Ξ -octet hyperon.

Earlier the discreteness in mass values of nucleons, the muon, the pion and other particles with the period of 16 electron masses (the period of $\delta=16m_e$ and numbers $n=13, 17$ etc. for the muon, the pion and the other particles) was found out from the analysis of exactly known relation between nucleon masses and the electron mass (CODATA relation) [1].

For an independent check of the empirical relations (found earlier by Y.Nambu, A.Hautot, G.Mac-Gregor and others) particle masses from recent Particle Data Group (PDG) 2016 compilation was performed.

On the distribution of all differences between 140 particles known with accuracy better than 5 MeV the grouping effect of masses of the pion, the muon and the constituent quark (445-460 MeV) was confirmed.

The stability of mass-intervals in the region of the bottom-quark mass is discussed.\

1. S.I.Sukhoruchkin, Nucl. Part. Phys. Proc. 270-272 (2016) 211.

Experimental Collaboration

Primary author: Dr SUKHORUCHKIN, Sergey (Petersburg Nuclear Physics Institute)

Presenter: Dr SUKHORUCHKIN, Sergey (Petersburg Nuclear Physics Institute)

Session Classification: Poster session

Track Classification: QCD and Hadronic Physics