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Simple formulas that generate the quark masses

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Abstract

In this paper we present a very simple formulas that generate the quark masses as a very direct functions sine and cosine of the Cabibbo angle.

The accuracy of the results are very big in relation to the latest experimental values.

1 Introduction

There is little to add about the direct relationship, the Cabibbo angle with quarks. Just to cite wikipedia as a summary. Say also that these formulas are related, as with those of Dr. Koide. Without going further, these formulas are based on the absence in the nature of negative mass, which does provide, mathematically, the Planck mass, which is obtained by a root, and whose negative solution does not exist in nature, unless the mass is a function of the square root complex mass of opposite sign. Thus, under the product operation, positive mass would be obtained, and in the addition operation, it would have zero mass.

From Wikipedia:

"In the Standard Model of particle physics, the Cabibbo_Kobayashi_Maskawa matrix (CKM matrix, quark mixing matrix, sometimes also called KM matrix) is a unitary matrix which contains information on the strength of flavour-changing weak decays. Technically, it specifies the mismatch of quantum states of quarks when they propagate freely and when they take part in the weak interaction"

2 The six equations which generates the masses of quarks

2.1 Experimental data:

Cabibbo angle: $\theta_c = 13.04°$

Quark masses: $m_t = 173.2\,Gev$, $m_b = 4.19\ Gev$, $m_c = 1.275\,Gev$, $m_s = 93\,Mev$, $m_d = 4.7\ Mev$, $m_u = 2.15\,Mev$

Electron mass: $0.5109989276\,Mev$

2.1.1 The six equations.

1. $[(\sqrt{m_b}) \cdot (\sin^{-1}\theta_c + 2)]^2 = m_t$, $[(\sqrt{4.19\,Gev}) \cdot (\sin^{-1} 13.04° + 2)]^2 = [(2.0469489\,\sqrt{Gev}) \cdot (4.43201 + 2)]^2 = 173.343\,Gev$

2. $[(\sqrt{m_c}) \cdot (\sin^{-1}\theta_c + 1)/3]^2 = m_b$, $[(\sqrt{1.275\,Gev}) \cdot (\sin^{-1} 13.04° + 1)/3]^2 = [(1.1291589\,\sqrt{Gev}) \cdot (4.43201 + 1)/3]^2 = 4.18012\,Gev$

3. $[(\sqrt{m_s}) \cdot (\frac{\sin^{-1}\theta_c}{\sqrt{\sin^{-1}\theta_c - 3}})]^2 = m_c$, $[(\sqrt{93\,Gev}) \cdot (\frac{4.43201}{\sqrt{4.43201-3}})]^2 = [(9.64365\,\sqrt{Gev}) \cdot (3.70363)]^2 = 1.27566\,Gev$

4. $[(\sqrt{m_d}) \cdot (\sin^{-1}\theta_c)]^2 = m_s$, $[(\sqrt{4.7\,Mev}) \cdot (\sin^{-1}\theta_c)]^2 = [(2.16794\,\sqrt{Mev}) \cdot (4.43201)]^2 = 92.32\,Mev$

5. $[(\sqrt{m_u}) \cdot (\frac{\sin^{-1}\theta_c}{3})]^2 = m_d$, $[(\sqrt{2.15\,Mev}) \cdot (\frac{4.43201}{3})]^2 = [(1.466287) \cdot (\frac{4.43201}{3})]^2 = 4.6924\,Mev$

6. $m_e \cdot (\sin^{-1}\theta_c) \cdot (\cos^2\theta_c) = m_u$, $(0.5109989276\,Mev) \cdot (4.432014) \cdot (0.974212)^2 = 2.1494\,Mev$

References

[1] The Review of Particle Physics, (http://pdg.lbl.gov/)