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On a Singular Solution in Higgs Field (2) - A Representation of Certain f_0 Mesons' Masses.

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In preceding paper 1) the mass and the basic structure of SM Higgs boson (H_0) were discussed by obtaining asymptotic solution for the Euler-Lagrange equation of nonlinear Klein-Gordon type, in Higgs field with newly developed mass triangle method.

In this paper we at first see that the ground state mass of glueball (GB) is calculated at $502.55 \text{ MeV}/c^2$ which is expected as $f_0(600)$ meson's mass. The GBs will attract mutually with neighbors among original their components of gluons in different colors, so that they could gradually form cluster. And we show that our computed masses of $f_0(1370)$, $f_0(1500)$ and $f_0(1710)$ are within each f_0 meson's mass from experiment while they will construct respective fullerene structure for ur- H_0 as well as $f_0(600)$, provided that the mass of ur- H_0 ($120.611 \text{ GeV}/c^2$) will consist of a number of masses of GB or f_0 in which all (pure) GB fullerene may have an icosahedral (Ih) rotational symmetry. Finally we propose a representation by which f_0 mesons masses above are reproduced respectively with masses of several light pseudoscalar mesons such as η_0 , K_0 , $K_0\text{-bar}$, K^\pm , π_0 , π^\pm and GB, under the consideration of those junction networks. Where the mass of $f_0(1500)$ is described only by the mass of GB. And also ur- H_0 will transform into H_0 under mass invariance through, for instance, γf_0 reaction to ηc as its component via radiative decay of J/ψ . Along with these discussions, a massive gluon propagator for virtual top quark-pair decay is calculated by Bethe-Salpeter equation.

1)Kazuyoshi Kitazawa, APS APRIL MEETING 2011, K1.00034.

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