Curie Particle And The Relation Between The Masses Of Sub-Atomic Particles, Supporting (Bicep2`S) Experiments, Mass Of Neutrino, Present "The Lhcb Collaboration" & "Atlas" Experiments.

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Abstract: Light is very sensitive matter. In terms of mass of a photon is important in every field of matter thus for the universe. The scientists of many countries are trying to find the mass of photon by experiment since 1936 and continuing this work in various countries. But the obtained results are differing to each other. So, we cannot consider these mass of a photon. On the other hand matter is made by the photons. We get this idea from the Einstein equation $E = mc^2$. Again, energy is nothing but the bunch of photons. I calculate the mass of a photon ($1.6596x10^{-54}$ gm) [1] and this mass is applicable to all fields. Here, in this article, we can calculate the mass of "Curie particle" (Unknown to us) by using this mass of photon & is related to Higgs and other sub-atomic particles. The energy of Higgs particle is very low as per BICEP2`s experimental report [2] and I reported about this matter in the year 2011 to "The Authority of CERN, Editor of Press release of CERN and many other places" by emailing, but did not get answer in this regards. But this is very interesting that as per "Universe Today" report (20th November, 2014) of BICEP2 (Background Imaging of Cosmic Extragalactic Polarization), my calculated observation supports their views. Dr. A. P. J. ABDUL KALAM, SRIJAN PAL SINGH reported (17 June, 2015) the mass neutrino as $1x10^{-37}$ kg [20] (in terms of energy is 0.056095861 eV) obtained from calculated results from the difference of two particles. Again, as per report, 19th June, & 27th July 2015, my calculated values tallied "The LHCb collaboration"[12], "ATLAS"[18]experiments. From this view, we have to think on photon`s mass and its activities.

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Key words: Conflicts Higgs energy (BICEP2), mass of neutrino, present experimental of "The LHCb collaboration", "ATLAS" experiments, Curie Energy (Unknown), quarks and other sub-atomic particles.

Introduction:

The most sensitive issue today's is Creation of the Universe. The scientists from different part of the world are searching in this field. But satisfactorily answer yet not has been published. We can come to this point to solve complicated trust of creation of the universe. As per reported by Tim Reyes on November 20, 2014 *"BICEP2 All Over Again? Researchers Place Higgs Boson Discovery in Doubt"* (Universe Today, Scientific News)..... "At the Large Hadron Collider (LHC) in Europe, faster is better. Faster means more powerful particle collisions and looking deeper into the makeup of matter. However, other researchers are proclaiming *not so fast*. LHC may not have discovered the Higgs Boson, the boson that imparts mass to everything, *the god particle* as some have called it. While the Higgs Boson discovery in 2012 culminated with the awarding in December 2013 of the Nobel Prize to Peter Higgs and François Englert, a team of researchers has raised these doubts about the Higgs Boson in their paper published in the journal Physical-Review-D...... Their conclusion is that a TC Higgs is predicted by Technicolor Theory that is consistent with expected physical properties, is low mass and has an energy level – 125 GeV – indistinguishable from the resonance now considered to be the Standard Model Higgs. Theirs is a composite particle and it does not impart mass upon everything". I wrote to the Editor of Press Realize (**press.office@cern.ch**), CERN on 18-12-2011 that "I calculate the mass of Higgs particle and published book " Complete Unified Theory", Total page-424, ISBN: 81-7643-000-5) in the year 1998. I found that 1650752.075 MeV or $1.650752x10^{12}$ eV, this is a bunch of $1.7731377x10^{33}$ photons. In terms of mass is $2.942734x10^{-21}$ gm and it will be the correct mass of Higgs particle. But, 126 GeV is $2.24615499x10^{-22}$ gm published in your Scientific American; I am giving thanks to all scientists of this unit those who linked with this valuable work. I want to say that, if the scientists of CERN to measure carefully 1650752.075 MeV, (1.65 TeV) the observed result will bring correct mass of Higgs particle. The Complete Unified Theory is single theory; it is applicable to all fields from particle to the Universe. I applied this theory in many fields and found that there is no variation between calculated and experimental results done by the scientists in different time. I calculated the max.

mass of the Universe, quantum circulation of Black Hole, birth of particles, stars, galaxies, internal functions of matter during emission of energy from $E = mc^2$. Action of a photon in a leaf, different energy stage of fission reaction of Uranium, mass of a photon, graviton, black particle, energy spent by the sun, stars its mass, distance of planets, solar system, stars etc by using new units. The scientists of BICEP2 [2] continuing the experiments and they announced that 125 GeV is very

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weak energy which I was reported to different scientific community since 2011. Now the scientists of The LHCb collaboration (27 July, 2015) [12], ATLAS (June, 2015) experimentally found [18] that "The signals expected for a W' boson with masses of 1.5, 2.0, or 2.5 TeV from an extended gauge model are displayed for illustration purposes". These masses are the successive derivatives of 1.65 TeV energy. So, 1.65 TeV is the creative energy of different particles when it will acts by angular quantum number or spin. To reach this point, we need to discuss on photon mass and its various applications in the microscopic field of particles to prove how far true it is.

The equation of mass of a photon [1] is,

$$\tfrac{1}{2} N_A \sigma c^2 = m_e c^2 \times \frac{\lambda_n}{\lambda_c} = \frac{h^2}{m_u \lambda_c^2} \quad (\text{where, } E = h\nu,\ \nu = \frac{c}{\lambda},\ E = mc^2)$$

$$\sigma = \frac{2\ h^2}{N_A m_u \lambda_c^2 c^2} = \mathbf{1.659619614 \times 10^{-54}\ gm} \text{ --------------- (A)}$$

$$\text{Or} \quad N_A\ \sigma = \frac{2\ h^2}{m_u \lambda_c^2 c^2} = 9.994456186 \times 10^{-31} \text{ gm -------- (B)}$$

$$(\text{Where, } N_A\ \sigma = \text{ mass of Avogadro number of photons})$$

Application of the equation of (A) or (B) is given here for example:

Rearranging this equation we get, The NEW equation for photochemical relation.

$$\text{The equation (A) or (B) can be arranged as } N_A h c = \frac{2\,h^3}{m_u \lambda_c^2\ \sigma c} \text{ ---------------(J)}$$

Stark-Einstein equation for photochemical relation induced by expose of light is given by $E\ \lambda = N_A\ h\ c$, when E is the energy absorbed by one mole of the chemical substance and λ is the corresponding wavelength [3]. Hence the value of $E\ \lambda$ as calculated from Stark-Einstein law experimentally tallies with the value obtained here in terms of the mass of the photon σ. This shows that the hither to unknown concept plays some role whenever there exists any exchange of energy. It proves that the mass of a photon is correct which calculated from the equation (A).

How far true the mass of a photon?

A) Application of 10^6 photons:

We know the value of Planck constant [4] is $h/2\pi = \hbar = 6.5821220\text{x}10^{-16}$eV-s. If we multiply by the energy (energy of a photon = $\bar{\epsilon} = 9.3097779229\text{x}10^{-22}$ eV w.r.t. mass $1.659\text{x}10^{-54}$ gm.) of 10^6 photons by $1/\sqrt{2}$ (where, $j = l + ½$, angular quantum number, $l = 0$), then we get,

$\hbar = 6.583008021\text{x}10^{-16}$ eV.

B) Birth of magnetism:

In the coulombs law, if we put 10^6 photons for m_1 & m_2 respectively in the equation,

$$F = \frac{m_1 x m_2}{4\pi\mu_0 r^2}\ N \ \ (\text{in air})$$

We get $6.33\text{x}10^{16}$ photons or in terms of energy, we will get $F = 9.4456\text{x}10^{-24}$ Jules, we know the value of magnetic momentum = μe = $9.28477\text{x}10^{-24}$ Jules [5], which proves that photon is responsible to create the field of magnetism and this idea is not known to us.

C) Energy produced by the electron:

To classifying the Electron structure written by me in the book "Mystery of Origin of the Universe" or "Complete Unified Theory", I observed that an electron has 9 orbits [6] of which outer most orbit is unstable & can able to produce 1000 photons. These 1000 photons will give energy as Eigen value of electron as:

$E1 = \{1000\ /\ 2\sqrt{3/2}\ /\ l2\} \times \bar{\epsilon}$ = 38.0070 eV at zero state, where Eigen value at zero state is 37.603 eV. (Here l = Å = 10^{-10} m).

It is applicable to other state also. So, photon follows quantum number and proves that photon is the ultimate energy source of all matter or the universe.

Determination of mass of particles.

Many book are there, here a reference taken from the book "Introduction to Nuclear Physics" [7], that -----"Knowing the disintegration scheme for a given radioactive, we can, however, calculate the amount of gamma ray dose4ge in roentgens received over a given time internal at a given distance from a 1- Curie source. Consider as an example a hypothetical nucleus that emits a beta ray and a 1 MeV gamma quantum. Assume also that there is no appreciable competition from internal conversion, in other words, for each β – disintegration, one gamma ray is emitted. At a distance of1-meter from the source, this gives a flux of photons equal to:

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$\Phi = 3.7\text{x}10^{10}\ /\ 4\pi \times d^2 = 2.94\text{x}10^5$ photons-cm^{-2}-sec^{-1}, d = 1 meter =100 cm

According to above references,

Point -1.

If we consider $\Phi = 2.94\text{x}10^5$ (actual calculated value is $2.944366447\text{x}10^5$ photons, when, π = 3.141592654.). So, mass of these photons is $4.996528\text{x}10^{-49}$ gm or 2.741140 x 10^{-16} eV. Because the accurate mass of a photon is $\sigma = 1.659619614\text{x}10^{-54}$ gm and in terms of energy of a photon = $\bar{\varepsilon}$ = $9.309779229\text{x}10^{-22}$ eV.

Point -2. We know the Planck constant, $h/[e]$ = $4.1356692 \times 10^{-15}$ eV-sec. Therefore, one Planck contains $4.442284933 \times 10^{6}$ photons ($4.1356692 \times 10^{-15}$ev / $9.309779229 \times 10^{-22}$eV). With respect to the mass, one atom contains Σ_{mu} = $1.000554697 \times 10^{30}$ photons, so, one atom is $2.263580379 \times 10^{23}$ times larger than Planck photons, if $4.442284933 \times 10^{6}$ photons is able to form a packet, thus, $E = h$ (when $\nu = 1$ Hz) then, $2.263580379 \times 10^{23}$ packets will responsible to produce frequency $2.263580379 \times 10^{23}$ Hz. If one photon realized from a packet, then, $2.263580379 \times 10^{23}$photons comes out /sec from $2.263580379 \times 10^{23}$ packets and in terms of energy is 210.73433 eV. Again, ratio of number of photons in atom and Avogadro numbers (that is$1.00055469 \times 10^{30}$ photons/ 6.0221367×10^{23}) of photons is $1.661460905 \times 10^{6}$ packets, if one photon liberates from this packet, then we get $1.661460905 \times 10^{6}$ photons and this amount of photons will almost same to Curie photons when it will multiply by √π. that is $1.661460905 \times 10^{6}$ photons x √π = $2.944862779 \times 10^{6}$ photons which is 10 times of Curie photons or 10 Φ. Now, 3/2 10 Φ in terms of energy is $4.121767436 \times 10^{-15}$ eV, where 3/2 is angular quantum number. $j = l \pm ½$, $l = 1$ But Planck constant is $4.1356692 \times 10^{-15}$ eV-sec, both the results is same as we can say. Therefore, we can consider Avogadro number of Φ or $N_A\Phi$ photon, in terms of energy is $1.773137724 \times 10^{29}$ photons x energy of a photons = $N_A\Phi\ \bar{\varepsilon}$ = $1.650752075 \times 10^{8}$ eV or 165 MeV. Now we can consider this energy for Curie as the mass of "Curie Particle or Mother Particle". This particle is very important in microscopic field and interrelated to different sub atomic particles as stated here through few examples.

Point -3.

Birth of sub-atomic particles from the Curie mass.

a) $\sqrt{\frac{3}{2}}\, N_A\Phi \times \bar{\varepsilon}$ or $\sqrt{\frac{3}{2}}\, N_A\Phi \times 165.0752$ Mev = 202.1750138 Mev. Where,

$N_A\Phi \times \bar{\varepsilon}$ = Mass of "Curie Particle or Mother Particle" = 165.0752 Mev

b) But, 165 Mev is the K. E. of fission fragments (Ref. value, 165 ± 5 Mev) [8]

c) 202 Mev is the total energy of fission product (Ref. value, 200 ± 6 Mev) [8]

d) $$\pi^0 = \frac{N_A\Phi}{\sqrt{\frac{3}{2}}} \times \bar{\varepsilon} = 134.78334 \text{ Mev}$$ (Ref. mass of neutral pion (π^0) is 134.976 Mev)

Different between the energy 134.976 MeV and 134.783324 is 0.1926575 MeV; this energy may be the energy of 3 to 4 million neutrino particles that is (0.064219 MeV to 0.048164 MeV) / 1×10^{6}= 0.064219 eV to 0.048164 eV, average value = (0.064219 eV + 0.048164 eV)/2 = 0.0561915 eV, while the mass of a neutrino is of the order of 1×10^{-37} kg where's 1×10^{-37} kg [20] or 1×10^{-34} gm in terms of energy is 0.056095861 eV. Both the result is same.

e) $$\eta = \frac{\left[\Sigma_{m_u} - \frac{N_A\Phi}{\sqrt{\frac{3}{2}}} \times \bar{\varepsilon}\right]}{\sqrt{\frac{3}{2}}} = 547.617 \text{ Mev}$$ (Ref. value of Eta particle, η = 547.5 Mev)

f) $$K^{+} = \frac{\left[\Sigma_m - \sqrt{2}\, N_A\Phi\right]}{\sqrt{2}} \times \bar{\varepsilon} = 493.5628 \text{ Mev}$$

(Ref. value of Kaon particle, K^{+} = 493.68 Mev)

g) $$p = \sqrt{\frac{3}{2}}\left[\Sigma_m - N_A\Phi\right] \times \bar{\varepsilon} = 938.6678 \text{ Mev}$$

(Ref. mass of proton, p = 938.2723 Mev)

Energy of a proton + energy of particle, because, the mass of p is greater than the mass of proton = 0.3955939 MeV and half of this value is 0.19779695 MeV (this value is almost equal to 0.27 MeV/√2 = 0.1909188 MeV, [An alpha particle with kinetic energy 0.27 MeV is deflected through an angle of 60° by a golden foil. Ref: [9]). This energy similar to 0.1926575 MeV, both the result is indicating that during birth of particle, neutrino particle has taken part into the reaction. In the case of neutron, we see that, mass of neutron (939.5656 MeV) is less than the value of 938.667839 MeV. So, ½ x (939.5656 MeV - 938.667839 MeV= 0.8977061 MeV) = 0.19335355 MeV (*This energy is the energy of 3 to 4 million neutrino particles, example given above*). But, 0.8977061 MeV/√3 = 0.518290 MeV which is almost same to the energy of electron (0.511 MeV). We know, when neutron of mass 939.5656 MeV (life time 887 sec) breaks, then it produce $n = p + e + \bar{\nu}$ [10]. Hence, Curie energy is functioning to give birth of many particles.

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h) $\pi^{\pm} = \dfrac{\left[\sum m_{u} - \pi\sqrt{2}\, N_{A}\Phi\right]}{\sqrt{2}} \times \bar{\varepsilon} = 139.974$ Mev (Ref. mass of Pi, $\pi^{\pm} = 139.570$ MeV)

i) But, $\left[\sum m_{u} - N_{A}\Phi\right] \times \bar{\varepsilon} = 766.419125$ MeV,

Assuming that this is the mass of a New Particle.

The 766.419125 MeV = 0.76642 GeV [11], this equation explaining that $N_A\Phi$ of photons releasing from an atom (showing here in the form of total number of photons present in atom ($\sum_{mu}$).

Now we can determine different energies of particles when multiply by number of atoms listed given bellow:

1) 0.76642 GeV x 2 = 1.53284 GeV
2) 0.76642 GeV x 3 = 2.29926 GeV
3) 0.76642 GeV x 4 = 3.06568 GeV
4) 0.76642 GeV x 5 = 3.8321GeV
5) 0.76642 GeV x 6 = 4.59852GeV
6) 0.76642 GeV x 7 = 5.36494 GeV
7) 0.76642 GeV x 8 = 6.13136 GeV
8) 0.76642 GeV x 9 = 6.89778 GeV
9) 0.76642 GeV x 10 = 7.6642 GeV
10) 0.76642 GeV x 11 = 8.43062 GeV
11) 0.76642 GeV x 12 = 9.18704 GeV
12) 0.76642 GeV x 13 = 9.96346 GeV
13) 0.76642 GeV x 14 = 10.72988 GeV
14) 0.76642 GeV x 15 = 11.4963 GeV
15) 0.76642 GeV x 16 = 12.26272 GeV
16) 0.76642 GeV x 17 = 13.02914 GeV
17) 0.76642 GeV x 18 = 13.79556 GeV
18) 0.76642 GeV x 19 = 14.56198 GeV
19) 0.76642 GeV x 20 = 15.3284 GeV
20) 0.76642 GeV x 21 = 16.09482 GeV
21) 0.76642 GeV x 22 = 16.86124 GeV
22) 0.76642 GeV x 23 = 17.62766 GeV
23) 0.76642 GeV x 24 = 18.39408 GeV
24) 0.76642 GeV x 25 = 19.1605 GeV
25) 0.76642 GeV x 26 = 19.92692 GeV
26) 0.76642 GeV x 27 = 20.69334 GeV
27) 0.76642 GeV x 28 = 21.45976 GeV
28) 0.76642 GeV x 29 = 22.22618 GeV
29) 0.76642 GeV x 30 = 22.9926 GeV

These results of particles tallied present "The LHCb collaboration" experimental results, published online 27 July 2015 [12].

"According to Nature Physics, published online, 27 July, 2015: "**Determination of the quark coupling strength $|V_{ub}|$ using baryonic decays**" …… The LQCD form factors that are required to calculate $|V_{ub}|$ are most precise in the kinematic region where q^2, the invariant mass squared of the muon and the neutrino in the decay, is high. The neutrino is not reconstructed, but q^2 can still be determined using the Λ_b^0 flight direction and the Λ_b^0 mass, but only up to a two-fold ambiguity. The correct solution has a resolution of about 1 GeV^2/c^4, whereas the wrong solution has a resolution of 4 GeV^2/c^4. To avoid influence on the measurement by the large uncertainty in form factors at low q^2, both solutions are required to exceed 15 GeV^2/c^4 for the $\Lambda_b^0 \rightarrow p\mu^-\bar{\nu}_\mu$ decay and 7 GeV^2/c^4 for the $\Lambda_b^0 \rightarrow (\Lambda_c^+ \rightarrow pK^-\pi^+)\mu^-\bar{\nu}_\mu$ decay. Simulation shows that only 2% of $\Lambda_b^0 \rightarrow p\mu^-\bar{\nu}_\mu$ decays and 5% of $\Lambda_b^0 \rightarrow \Lambda_c^+\mu^-\bar{\nu}_\mu$ decays with q^2 values below the cut values pass the selection requirements. The effect of this can be seen in Fig.-2, where the efficiency for the signal below 15 GeV^2/c^4 is reduced significantly if requirements are applied on both solutions. It is also possible that both solutions are imaginary owing to the limited detector resolution. Candidates of this type are rejected. The overall q^2 selection has an efficiency of 38% for $\Lambda_b^0 \rightarrow p\mu^-\bar{\nu}_\mu$ decays and 39% for $\Lambda_b^0 \rightarrow \Lambda_c^+\mu^-\bar{\nu}_\mu$ decays in their respective high-q^2 regions …..".

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A figure is given here to compare with the figure 2 of experimental results for example.

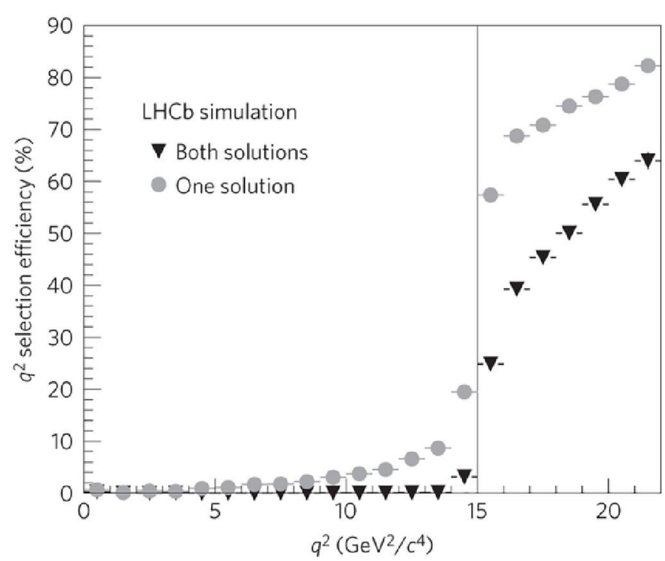
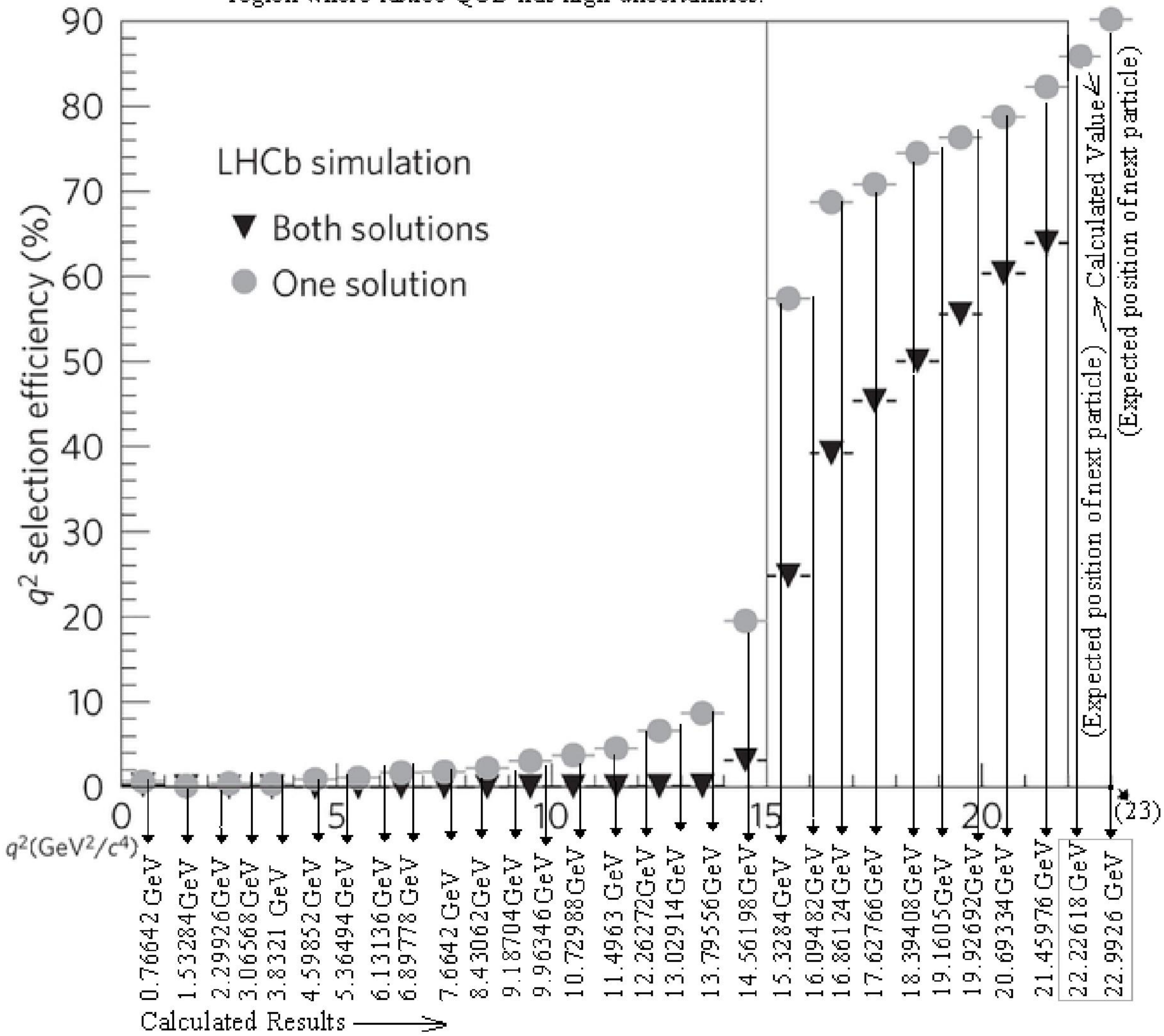


Figure 2: Illustrating the method used to reduce the number of selected events from the q^2 region where lattice QCD has high uncertainties.



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If we consider 766.419125 MeV in the form of followings, then it is possible to get the energy of different quarks: i) $(\sqrt{2})^{1/2}$ = 1.189207115 x 766.419125 MeV = 911.4310765 MeV x 100 = 91143.10765 MeV ≈ Z^0 = 91200 MeV, mass of Boson [13].

ii) $[(\sqrt{3/2})^{1/2}]^{1/2}$ = 1.05198506 x 766.419125 MeV = 806.2614692 MeV x 100 = 80626.14692 MeV, the mass of Higgs particle (80400 MeV) [13].

iii) $([\{[(\sqrt{2})^{1/2}]^{1/2}\}^{1/2}]^{1/2})^{1/2}$ = 1.010889286 x 766.419125 MeV = 774.764882 MeV ≈ 775.11±0.34 energy of $u\bar{d}$ quark (Charged rho meson) or $\frac{u\bar{u}-d\bar{d}}{\sqrt{2}}$ = 775.49±0.34 (Neutral rho meson) [13]. Or

iv) $[\{[(\sqrt{3/2})^{1/2}]^{1/2}\}^{1/2}]^{1/2}$ = 1.012751399 x 766.419125 MeV = 776.1920411 MeV or o.776 GeV ≈ 775.11±0.34 MeV [11].

v) Again, $[\{[(\sqrt{2})^{1/2}]^{1/2}\}^{1/2}]^{1/2}$ = 1.021897149 x 766.419125 MeV = 783.2015188 MeV ≈ 782.65±0.12 energy of $\frac{u\bar{u}+d\bar{d}}{\sqrt{2}}$ quark in the name of Omega meson [13].

vi) But, √3 x 766.419125 MeV = 1327.4768 MeV which is near the mass Ksi-minus (1321.3 MeV or 1.321 GeV) particle.

Point – 4.

Now we can come to the point that, energy of Avogadro number of Curie photon or $N_A\phi$ photon at a distance of 1 meter is important. This is 165 MeV. If this distance consider as 1 cm, then we get 1.65 TeV. The CERN going to estimate the mass of Higgs particle and announced that mass of Higgs particle nearby 126 GeV or 0.126 TeV [14]. The calculated value is about 13 times larger than the experimental value is 126 GeV.

Point -5

Determination of mass of Higgs particle and quarks.

According to "Scientific American" News, dated 4th July, 2012 announced as "New Particle Resembling Long-Sought Higgs Boson Uncovered at Large Hadron Collider. The CERN collider, the most powerful atom smasher in history, appears to have fulfilled its primary quest By John Matson | July 4, 2012.

------ Unlike some past announcements centered on the Higgs in the past few years, which have produced as much ambiguity and confusion as anything else, this one did not disappoint. ATLAS physicists said that their most recent data reveal the presence of an unknown particle with a mass of about 126.5 GeV, or 126.5 billion electron-volts. An electron-volt is a physicist's unit of mass or energy; for comparison, the proton has a mass of about 1 GeV. The CMS collaboration found evidence for a new particle with a mass of 125.3 GeV.---.

According to Tevatron Targets Higgs Mass *by* JASON MAJOR *on JULY 2, 2012*

----Today, researchers from Fermilab announced they have zeroed in further on the mass of the Higgs boson, the controversially-called "God particle"* that is thought to be the key to all mass in the Universe. This news comes just two days before a highly-anticipated announcement by CERN during the ICHEP physics conference in Melbourne, Australia (which is expected by many to confirm actual proof of the Higgs.)

"---Even after analyzing the data from 500 trillion collisions produced over the past decade at Fermilab's Tevatron particle collider the Higgs particle has not been identified directly. But a narrower range for its mass has been established with some certainty: according to the research the Higgs, if it exists, has a mass between 115 and 135 GeV/c^2. "Our data strongly point toward the existence of the Higgs boson, but it will take results from the experiments at the Large Hadron Collider in Europe to establish a discovery," said Fermilab's Rob Roser, co spokesperson for the CDF experiment at DOE's Fermi National Accelerator Laboratory.

The CERN going to estimate the mass of Higgs particle and announced that mass of Higgs particle nearby 126 GeV or 0.126 TeV [12]. The 1.65 TeV is about 13 times larger than this experimental value, though 126 GeV was not confirmed on the date 12 December, 2011. But according to BICEP2 Experiment claims that this energy is very low and the universe created from gravity waves [2]. This is true, I think. Because, in my calculation, photons, graviton particles created from Black particles, huge number of graviton particles in the form of waves attracts all other particles to form matter and thus the universe before the Big Bang which we may call past history of creation of the universe. In their characteristics, the structure of graviton, photon, other energy, particles are not same. Due to these cause, the gravitational force was very very strong and at the time of birth of the universe. It was very hazard environment during formation of different particles. In sudden circumstances of that period, all matter was bound to compact in a point for a fraction of second thus we know as now Big Bang.

Again, *By Nick Collins, Science Correspondent 10:00PM GMT 13 Dec 2011, reported as ----At a specially-arranged seminar at the Cern laboratory in Geneva, researchers presented clues in their data which suggest experts may have pinned down the "God particle" at last.*

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Scientists remained cautious about their findings and insisted they did not represent an official discovery, but admitted the results were "intriguing".

The two teams searching for the Higgs boson at the Large Hadron Collider said they had found hints which point towards a Higgs boson with a mass between 124 and 126 gigaelectronvolts (GeV).

A mass of 125 GeV is equivalent to about 130 times the weight of a proton found in the nucleus of an atom.

A graph of ATLS+CMS experimental is given here for Higgs-Boson mass which is related to calculated results as:

If we divide 1.65 TeV by 4 π, 3 π, 2 π, π, then we will get the mass of other particles.

Thus, $N_A\Phi\ \bar{\varepsilon} / 5\pi = 105.088$ GeV., $N_A\Phi\ \bar{\varepsilon} / 4\pi = 131.36$ GeV, $N_A\Phi\ \bar{\varepsilon} / 3\pi = 175.15$ GeV, $N_A\Phi\ \bar{\varepsilon} / 2\pi = 262.72$ GeV, $N_A\Phi\bar{\varepsilon} / \pi = 525.45$ GeV. This energy will be the mass of new particles. In figure range is showing from 100 GeV to 600 GeV. The calculated value is within this range.

Ref: Dec 13, 2011... Particle collision tracks at LHC. A typical candidate event at the Large Hadron Collider (LHC), including two high-energy photons whose energy...

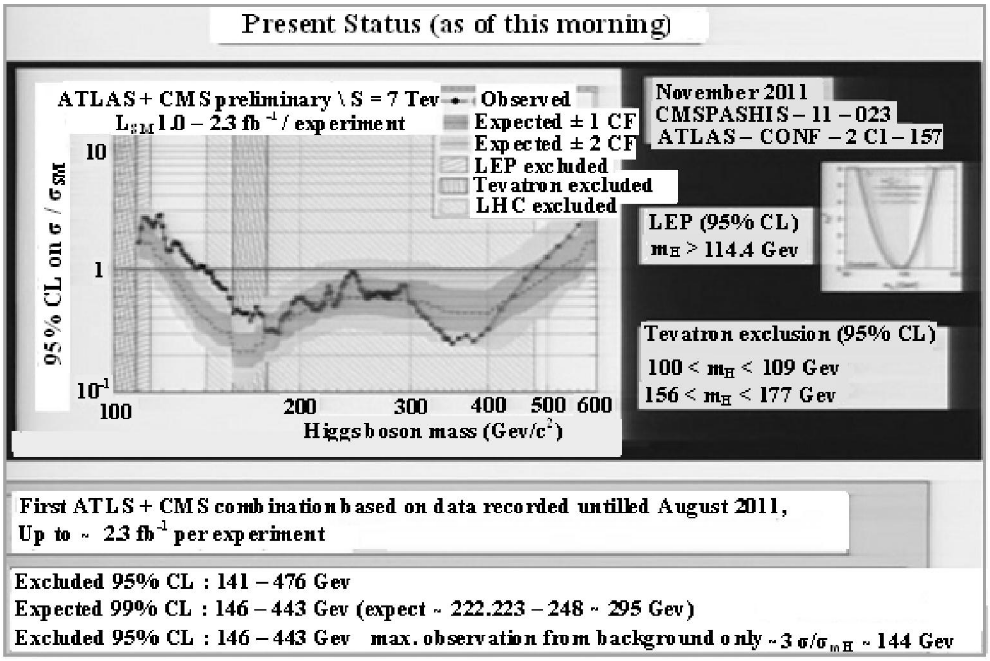
The mass of Curie photons determine above, when distance considered as 1 meter, if we consider distance from the source as 1 cm, then we will get the mass in terms of energy 1650752.075 MeV or 1.65 TeV.

$\Phi = 3.7\text{x}10^{10} / 4\pi\text{x}d^2 = 2.94\text{x}10^9$ photons-cm-^{2}-sec^{-1}, d = 1 cm.

Now, Avogadro number of Φ is $N_A\ \Phi_{d=1cm} = 1.773137724\text{x}10^{33}$ photons. Energy of a photon is $\bar{\varepsilon} = 9.3097779229\text{x}10^{-22}$ eV. So, mass of Higgs particle will 1650752.075 MeV or 1650.752075 GeV or 1.65 TeV. If we divided 1650.752075 GeV by 3 π, then 175.50235 GeV will be the mass of a quark.

According to present experimental mass of quark has been estimated as m_t =168-192 GeV/c^2.

The comparison of the results of the computations with the experimental data supplies the values for the current quark masses. [15].



Masses of the current quarks:		
m_u =2-8MeV/c^2	m_c =1,0-1,6GeV/c^2	m_t =168-192GeV/c^2
m_d =5-15MeV/c^2	m_s =0,1-0,3GeV/c^2	m_b =4,1-4,5GeV/c^2

The calculated 175 GeV is showing the mass of quark within the range of 168-192 GeV. We can determine the mass of quarks in the form of (Σ_{mu}+ $N_A\Phi'$) x $\bar{\varepsilon}$ MeV by using Φ' photons listed in "Table - $\Phi'_{(element)}$ photons of stable elements and creation of various energies".

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For examples:

1) When, $\Phi'_{(\text{of tritium, isotopic mass of Hydrogen})}$ = 0.103x10^4 photons, then, (Σ_{mu} + $N_A\Phi'$) x $\bar{\varepsilon}$ = 932.071794 MeV and 932.071794 MeV x 2 = 1864.14358 MeV, the mass of quark cu (1864.83 ± 0.14 MeV) as D meson) [13].

2) When, $\Phi'_{(\text{of stable mass of Boron})}$ = 0.511x10^4 photons, then, (Σ_{mu} + $N_A\Phi'$) x $\bar{\varepsilon}$ = 934.3592 MeV& 934.3592MeV x2 = 1868.7184 MeV ≈ 1869.60 ± 0.16 MeV of cd quark as D meson.[13]

3) When, $\Phi'_{(\text{of stable mass of Carbon})}$ = 0.612x10^4 photons, then, (Σ_{mu} + $N_A\Phi'$) x $\bar{\varepsilon}$ = 934.92549 MeV &934.92549 MeV x2 = 1869.8509 MeV ≈ 1869.60 ± 0.16 MeV of cd quark as D meson.[13]

4) When, $\Phi'_{(\text{of isotopic mass of Uranium})}$ = 9.434x10^4 photons, then, (Σ_{mu} + $N_A\Phi'$) x $\bar{\varepsilon}$ = 984.38807 MeV &984.38807 MeV x2 = 1968.776 MeV ≈ 1968.47 ± 0.33 MeV of cs quark as strange D meson [13].

Similarly, the energy (Σ_{mu} - $N_A\Phi'$) x $\bar{\varepsilon}$ MeV will be applicable to other quarks also. The decrease of energy (Σ_{mu} - $N_A\Phi'$) x $\bar{\varepsilon}$ from atom for every element will less than the energy of increased energy (Σ_{mu} + $N_A\Phi'$) x $\bar{\varepsilon}$ and the difference of energy between two will equal to:

(Σ_{mu} + $N_A\Phi'$) x $\bar{\varepsilon}$ - (Σ_{mu} - $N_A\Phi'$) x $\bar{\varepsilon}$ = 2 x $N_A\Phi'$ x $\bar{\varepsilon}$. In the case of decreased energy 930.9281 MeV for Hydrogen will be the starting point to the end energy of the element of atomic number – 126 will 859.1315 MeV and for increased, this value within the value of 932.0606 MeV to 1003.857 MeV. Again, (Σ_{mu} + $N_A\Phi'$) x $\bar{\varepsilon}$ + (Σ_{mu} - $N_A\Phi'$) x $\bar{\varepsilon}$ = 2 x 931.4943335 MeV = 1862.988667 MeV = constant value for every element at this solution ≈ value of quark cu (1864.83 ± 0.14 MeV). Hence, all elements whenever it is stable or isotopic are composed of Φ' photons & responsible to form various masses carrying spin or angular quantum moment with different sub atomic particles, quarks etc. Antiparticles are opposite spin of the same particle. There are different types of spins, listed in the table for example.

Here, Σ_{mu} = 1.000554697x10^{30} photons and 931.4943335 MeV. Because, m_u (1.6605402x10^{-24} gm) / σ = Σ_{mu} = number of photons in atom. So, energy of an atom = 1.000554697x10^{30} photons x 9.309779229x10^{-22} eV (energy of a photon) = 931.4943335 MeV.

From the above results, we may draw a general law that Σ_{mu} is constant photons and $N_A\Phi$ photons are variable.

When, i) $\Sigma_{mu} > N_A\Phi$ on changing of $N_A\Phi$ photons, we may observe many particles. The particle might be positive or neutral nature.

When, ii) $N_A\Phi > \Sigma_{mu}$, then changeable Avogadro number of φ photons & on difference of photons might be the mass of particles which may termed as the antiparticle of the same.

All particles need to play between these two types of energy for lower quark's mass and for higher quark's mass in single mode. According to present quark theory there are three types of generation of particles with antiparticles [16] as:

Quark flavor properties

Name	Symbol	Mass (MeV/c^2)	J	B	Q	I_3	C	S	T	B'	Antiparticle	Antiparticle symbol
First generation												
Up	u	1.7 to 3.1	$^1/_2$	$+^1/_3$	$+^2/_3$	$+^1/_2$	0	0	0	0	Antiup	u
Down	d	4.1 to 5.7	$^1/_2$	$+^1/_3$	$-^1/_3$	$-^1/_2$	0	0	0	0	Antidown	d
Second generation												
Charm	c	1,290 + 50 - 110	$^1/_2$	$+^1/_3$	$+^2/_3$	0	+1	0	0	0	Anticharm	c
Strange	s	100 + 30 - 20	$^1/_2$	$+^1/_3$	$-^1/_3$	0	0	-1	0	0	Antistrange	s
Third generation												
Top	t	172,900±600 ± 900	$^1/_2$	$+^1/_3$	$+^2/_3$	0	0	0	+1	0	Antitop	t
Bottom	b	4,190+180 - 60	$^1/_2$	$+^1/_3$	$-^1/_3$	0	0	0	0	-1	Antibottom	b

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Again from the reference, the range of mass of the quarks is:

Quarks

Name	Symbol	Antiparticle	Charge (e)	Mass (MeV/c^2)
up	u	ū	$+^2/_3$	1.5–3.3
down	d	d̄	$-^1/_3$	3.5–6.0
charm	c	c̄	$+^2/_3$	1,160–1,340
strange	s	s̄	$-^1/_3$	70–130
top	t	t̄	$+^2/_3$	169,100–173,300
bottom	b	b̄	$-^1/_3$	4,130–4,370

Assuming that the down range energy (859.1315 MeV) and up range energy (1003.857 MeV) may produce the ranges of different quarks. Let us try of solve the problem in simple way:

Energy is considered form the element of atomic number – 126.

[Note that, elements 119, to 126 is still unknown, this may be the last element in the periodic table from the view of photonic system. The element 126 can produce energy, 1.001161846 MeV, we may call it 1 MeV unit, because, 0.518945728 MeV – 0.511 MeV = 0.007945728 MeV x 126 = 1.001161846 MeV = 1 MeV].

1) Energy for 1st Generation:

859.1315 MeV/ 126 = 6.8185 MeV per nucleon, 6.8185 MeV/2 = 3.40925 MeV/2 = 1.7046 MeV.

1.7046 MeV/ $(\sqrt{3}/2)^{½}$ = 1.54027 MeV and 6.8185 MeV/ $(\sqrt{3}/2)^{½}$ = 6.1512 MeV.

a) Range of Up Quark = 1.5 MeV to 3.3 MeV. Calculated result = 1.54 MeV to 3.409 MeV.

b) Range of Down Quark = 3.5 to 6.0 MeV, Calculated result = 3.40925 MeV to 6.1512 MeV.

2) Energy for 2nd Generation:

1003.857 MeV x $(\sqrt{3}/2)^{½}$ = 1110.950 MeV, 1003.857 MeV x $\sqrt{3}/2$ = 1229.468 MeV.

c) Range of Charm Quark = 1160 MeV to 1340 MeV. Calculate d result = 1110.950 MeV to 1229.468 MeV.

Again, (1003.857 MeV - 859.1315 MeV) = 144.7255 MeV

144.7255 MeV / 2 = 72.36 MeV and 144.7255 MeV / $(\sqrt{3}/2)^{½}$ = 130.77 MeV.

d) Range of Strange Quark = 70 MeV to 130 MeV. Calculated result = 72.36 MeV to 130.77 MeV.

3) Energy for 3rd Generation:

e) Simply, 10 x 1003.857 MeV = 10038.57 MeV near the energy of $b\bar{b}$ (Y') quark (10023 MeV).

1003.857 MeV x 4 = 4015.43 MeV and 4015.43 MeV x $(\sqrt{3}/2)^{½}$ = 4443.80 MeV

f) Range of Bottom Quark = 4130 MeV to 4370 MeV. Calculated result = 4015.43 MeV to 4443.80 MeV.

1003.857 MeV x 126 = 126485.98 MeV and 126485.98 MeV x $\sqrt{2}$ = 178878.19 MeV, again,

126485.98 MeV x $\sqrt{3}/2$ = 154913.057 MeV.

Now, average of this two energy is, (178878.19 MeV + 154913.057 MeV) / 2 = 166895.62 MeV.

g) Range of Top Quark = 169100 MeV to 173300 MeV. Calculated result = 166895.62 MeV to 178878.19 MeV.

Considering the $Xenon_{54}$ element for an example to determine the mass of quark:

The Down energy of element, Xe_{54} = 900.4849 MeV and Up energy = 962.504 MeV.

Difference of energy = 962.504 MeV - 900.4849 MeV = 62.0191 MeV and on adding the energy 962.504 MeV + 900.4849 MeV = 1862.9889 MeV = constant.

h) 62.0191 MeV / 54 = 1.1485 MeV, then, 1.1485 MeV x 3 = 3.4455 MeV and 3.4455 MeV / 2 = 1.72275 MeV, then, 1.72275 MeV / $(\sqrt{3}/2)^{½}$ = 1.5566 MeV and 1.5566 MeV x 2 = 3.1133 MeV.

The Range of Up Quark = 1.5 MeV to 3.3 MeV.

i) 900.4849 MeV x $\sqrt{2}$ = 1273.4779 MeV, ≈ 1270 MeV [16]

j) 900.4849 MeV x 3/2 = 1350.7273 MeV ≈ 1350 MeV [16]

k) 962.504 MeV ≈ 960 MeV [29]

l) 962.504 MeV x $\sqrt{3}$ = 1667.1058 MeV ≈ 1670 MeV [16]

m) 962.504 MeV / $\sqrt{3}$ = 555.7019 MeV ≈ 550 MeV [16]

n) 962.504 MeV / $\sqrt{3}/2$ = 785.881 MeV ≈ 780 MeV [16]

o) 962.504 MeV x 2 = 1925.008 MeV and 1925.008 MeV / (3/2) =1283.338 MeV ≈1285 MeV [16]

Determination of mass of quark to use the $N_A\Phi\ \bar{\varepsilon}$ = 1.650752075×10^{8} eV or 1650752.075 MeV following the equation $\Phi = 3.7\times10^{10} / 4\pi x d^2 = 2.94\times10^{9}$ photons-cm^{-2}-sec^{-1}, d = 1 cm.

Here, to considering the distance d = 1 cm, we get $N_A\Phi = 1.773137724\times10^{33}$ photons and in terms of energy is 1650752.075 MeV. Again, 1650752.075 MeV / 3π = 175150.235 MeV. From the journey of this energy to 180000 MeV for Top quark, we may find out the energies of other quarks as,

i) 180000 MeV (Top quark) - 175150.235 MeV = 4849.765 MeV as 180000 MeV >175150.235 MeV.

ii) 4849.765 MeV – 4500 MeV (Bottom quark) = 349.765 MeV as 4849.765 MeV > 4500 MeV.

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iii) 180 MeV (Strange quark) – ½ x 349.765 MeV = 5.1175 MeV as 180 MeV > ½ x 349.765 MeV.

iv) But, 5.1175 MeV x 2 = 10.235 MeV, the energy of Down quark = 10 MeV.

v) Regarding the energy of Charm quark, it is difficult to find the energy following above.

Though we can make relation as,

½ x 349.765 MeV x 8 = 1399.024 MeV, the range of Charm Quark = 1160 MeV to 1340 MeV.

Why the energy 349.765 MeV is important?

349.765 MeV = 2 x 1.87848×10^{29} photons. This photon is almost equal to $2\times1.77313772\times10^{29}$ photons. Because, at d = 1 meter distance, the equation, $\Phi = 3.7\times10^{10} / 4\pi \times d^2 = 2.94436644\times10^{5}$ photons - cm^{-2}-sec^{-1} and Avogadro's number of this photons brings 2 x 1.77313772 x 10^{29} photons.

Therefore, $2\times N_A\Phi'\times\bar{\varepsilon}$ = 330.15041 MeV. Again, (349.765 MeV - 330.15041 MeV) /2 = 9.8072928 MeV ≈ 10 MeV.

These few examples tell us that Φ′ photons are responsible to create mass of the particle. Φ′ photons in terms of energy (for example, Φ′ of Hydrogen = 0.101×0^{4} photons = 9.40287×10^{-19} eV) are very small compare to Planck energy (6.5821220×10^{-16} eV-s). Therefore, to determine the high mass of particles, N_A Φ′ photons have been considered.

In this way we may classify different quarks but need more investigation from the view of photonic idea. These are only examples just for searching the behavior of particles. To classify from all respect, we may call that Φ photons and Φ′ photons are important in the microscopic field of particle. Quark, Higgs, Bosons are very high energy particles. In all particles, Φ photons and Φ′ photons are there in the form of energy. So, these photons are responsible to build all particles. Therefore, we may define Φ′ photons as mini Φ′ quark which can build the internal block of quarks, Higgs, Bosons, subatomic particles, proton, neutron, electron etc.

Process of determination of average Life time of particles to use Curie mass.

Point: 6. Avogadro's

The life time of these particles are very short. The force is strong. Particle that can decay under the influence of the strong force do so very quickly. They are named "Resonances". An example is the Δ - resonance with an average life time of only $0.6\text{x}10^{-23}$ sec [17].

If the particle is made by the photons and $N_A\Phi$ photons takes main role for this microscopic field, then we can determine the average life time of the particle as:

The energy of $\hbar$/ $[e]$ = $6.582122\text{x}10^{-16}$ eV-sec.

The energy of $N_A\Phi$ photons = $N_A\Phi$ photons x $\bar{\varepsilon}$ = $1.650752075\text{x}10^{8}$ eV, when, energy of a photon = $\bar{\varepsilon}$ = $9.309779229\text{x}10^{-22}$ eV and 3/2 = spin or angular quantum number ($j = l + ½$, $l = 1$). Then,

$$\frac{3}{2}\left(\frac{\hbar\,[e]}{N_A\,\Phi\,\bar{\varepsilon}}\right) = 0.5981\text{x}10^{-23}\ \text{sec} \quad \ldots\ldots\ldots (59)$$

This calculated result is almost same to experimental value $0.6\text{x}10^{-23}$ sec. from this view, the $N_A\Phi\ \bar{\varepsilon}$ energy is representing the energy of strong force. So it is an important factor for the birth of the particles.

Point: 7. ATLAS presents experimental results [18]

Recently ATLAS experiments announced by showing the following figure. In these experimental evidences, we observed in fi0.056095861 eV gure – 2, that:

"Measured distribution of the di-jet mass after selecting W' candidates in the WZ final state. The data (black points) is compared to the expected background (blue line). The signals expected for a W' boson with masses of 1.5, 2.0, or 2.5 TeV from an extended gauge model are displayed for illustration purposes".

In my calculations, at least 1.65 TeV is required [16] for knowing the creation of the particles. Here, we observed that the experimental results obtained as 1.5 TeV, 2.0 TeV and 2.5 TeV. The 2.0 & 2.5 TeV we may find as given bellow:

First of all, 1.5 TeV brings 1.5 TeV x √(√3/2) = 1.66 TeV. ≈ 1.65 TeV, where, 3/2 = angular quantum number, $j = l + ½$, when $l = 0$, then, $j = ½$, when, $l = 1$, then, $j = 3/2$. Secondly, we see, **a)** 1.65 TeV x √3/2 = 2.0 208290 TeV ≈ 2.0 TeV. **b)** 1.65 TeV x 3/2 ≈ 2.475 TeV = 2.5 TeV.

When, $j = 3/2$, quantum number or spin.

Similarly, we can get other energy as (when, $j = ½$ & 3/2):

c) 1.65 TeV x ½ = 0.825 TeV (less than 1 TeV), **d)** 1.65 TeV / √½ = 1.166 TeV, [1st Data], **e)** 1.65

TeV / (√3/2) = 1.347 TeV ≈ 1.35 TeV [3rd Data & after this, 1st Green Background Model found in figure]. **f)** 1.65 TeV x 2 = 3.3 TeV. (Within the range of 3.5 TeV, Figure – 2). **g)** 1.65 TeV x √2 = 2.33 TeV≈ 2.26 TeV (The W' candidate has a reconstructed mass of 2.26 TeV, **Figure – 1**). **h)** 1.65 TeV x √5/2 = 2.608 TeV (**In figure –2**, energy shown, 2.5 TeV & next step is 2.6 TeV)

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i) 1.65 TeV x √7/2 = 3.086 TeV (**In figure –2**, energy mentioned 3 TeV)

j) 1.65 TeV x √9/2 = 3.500 TeV (**In figure –2**, ATLAS Range of energy = 3.5 TeV)

Therefore, 1.65 TeV energy is most important which obtained from "Curie Particle" energy (Unknown to us). For this reasons "Curie Particle" termed as "MOTHER PARTICLE" at last.

Present ATLAS Experiment:

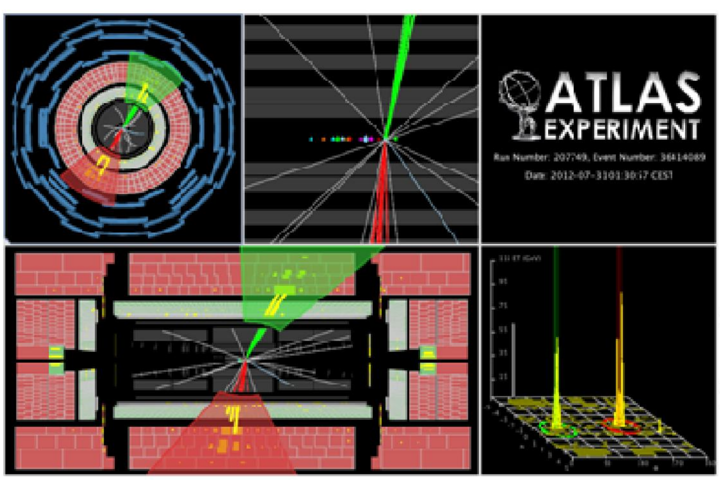


Figure 1: Display of one of the events selected as a candidate W' event decaying to WZ. The signals from the Z candidate jet are marked in red, while the signals from the W candidate jet are marked ingreen.The W' candidate has a reconstructed mass of 2.26 TeV.

We calculated the near energy of 2.26 TeV by using 1.65 TeV, when it is multiply by √2 and get result, 2.33345 TeV. The 2.26 TeV ≈ 2.3 TeV, this facts indicating that candidate W′ decaying to WZ. Therefore, it can be assumed, 2.33345 TeV will be 1st decaying and then for 2nd decaying energy 2.26 TeV. The difference between two energy is 0.07345 TeV or 73.45 GeV. According to reference, "5.3 Spin and parity analysis in the H → WW∗ → eνμν… the dilepton variables4 (p ℓℓ T > 20 GeV, Δφℓℓ < 2.8), while a cut on mℓℓ (mℓℓ < 80 GeV) targets the WW background" [17]. The 73.45 GeV might be the energy of mℓℓ which less than 80 GeV to target WW particle. Lot of energy classification is there.

The CERN, ATLAS Experiments are the wonderful attempted to find the particle`s characteristics throughout the world.

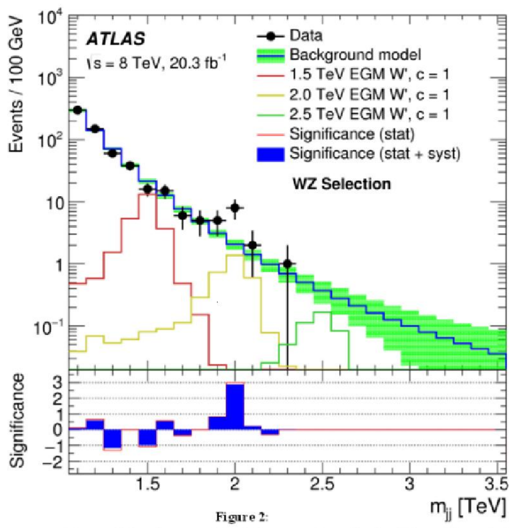
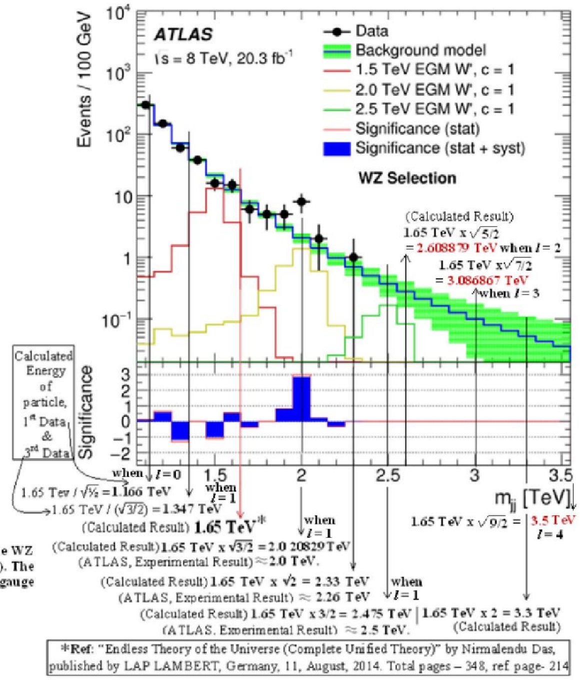


Figure 2:

Measured distribution of the di-jet mass after selecting W' candidates in the WZ final state. The data (black points) is compared to the expected background (blue line). The signals expected for a W' boson with masses of 1.5, 2.0, or 2.5 TeV from an extended gauge model are displayed for illustration purposes.



Conclusion:

From the above calculated results, we can say, the mass of a photon is correct and it is applicable to all fields from the particle to the universe. To find the different of mass of particles, we can come to the point that Curie particle is there in an atom and acting as MOTHER PARTICLE in which Φ photons taking part to create energy and also Φ′ photons inter related to all elements in the field of sub atomic particles. These few examples proves that beyond builder quarks even Higgs-Boson, Φ′ quarks are there who is really responsible to build all particle. The matter in the universe is made by this Φ & Φ′ photons thus all matter made by photons and is satisfy the Einstein's equation, $E = mc^2$. Because, E is composed of photons which is related to mc^2.

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Again, the present ATLAS experiments supporting the importance of 1.65 TeV. In all respect, photons were converting to particles by the effect of environmental force during creation of the universe. Photons and graviton particles was created from the black particles before Big Bang [19], after creating all particles, it was gathered to a minimum space by strong pooling to the center and formed Big Bang. I calculated and found that at that time for a moment, the density of Big Bang was 9.1 x 10^{97} kg/m^3, this density is 10 times lager of Planck Density (9.1 x 10^{96} kg/m^3. More searching is required to know about the birth of particles by experiment [19].

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