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An Exponent of the Boson

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Abstract: The masses of bosons are expressed dimensionless in relation to the mass of the Hypothetical Fundamental Particle. Such a presentation enabled the gradation and rooting of dimensionless quantities and determination of the relationship between boson masses.

Keywords: Bošković, Bozon, Product

1. Introduction

As in many previous articles, we apply a hypothetical fundamental particle (mass - m_f **=1,08862*10^{-28}kg,** radius R_f **=3,23131*10^{-15}m**), which, has property of no attraction or repulsion, and other unique properties [1, f 3b and 4]. Note that $\mathbf{m_f * R_f = m_{pl} * l_{pl} = \hbar/c}$ [1, f 11]:

Hypothetical fundamental particle: (hereinafter fundamental particle), [1] has the most likely to be the point around which most of this happens in the quantum world. It can be said that it is one of the particles mentioned in modern particle physics, but it is more logical to compare it with the much more important Theory [2] which was created in the 18th century and has remained an unsurpassed theory of everything to this day.

Proving and explaining the fundamental particle with the mentioned theory would take us far from the subject of this paper, and here we are satisfied with the following attitude:

In the multitude of virtual particles that intersect the abscissa [2, Figure 1] in which there is neither repulsion nor attraction, the fundamental particle is unique because it unites in itself Bošković's "Cohesion" and "Non-Cohesion" boundary.

It is the only one in a mathematical sense but it has a huge number of times in reality.

The extent to which this feature is important and usable for the subject of the paper will be shown by testing hypothesis a):

a) Suppose: nature is rational, so boson masses can be represented by simple relations.

1. Formula for bosons

In Table, **mp** are the masses of the bosons, **fp** is the mass of the fundamental particle and **m = mp / fp** are the dimensionless masses of the bosons. Input data is from the Wikipedia: except for

gluon data. The sum **bf = -Σb** is the negative sum of the boson exponents that gives the exponent of the fundamental particle, in the last column **Π** is the product of all $\mathbf{m}^{\wedge\mathbf{b}}$. Let's sort the bosons by increasing mass and assign them serial number ***i***.

Table exponents of the bosons

Bozoni	mp		m=mp/fp	*i*	$b=2^{-i}$	$\mathbf{m}^{\wedge\mathbf{b}}$
Higs boson - H	**2,23724047E-25**	**h=**	**2055,113030841**	***1***	1/2	**45,333355**
Z boson - Z	**1,62556645E-25**	**z=**	**1493,233665427**	***2***	1/4	**6,216300**
W^{+-} boson - W	**1,43288567E-25**	**w=**	**1316,238488494**	***3***	1/8	**2,4542388**
Gluon - G	**2,11320426E-31**	**g=**	**0,001941174260**	***4***	1/16	**0,6768681**
fund. part. - fp	**1,08862162E-28**	**f=**	**1,0000000000000**	**bf=- Σb**	**- 15/16**	**1,0000000**
L = $\log_2(8\pi)$ =	**4,651496129**				**Π = L^4 =**	**468,1345078**

The scheme that connects mass of bosons is very quickly noticed from the dimensionless values, and that is the order in the exponent $\mathbf{b} = \mathbf{2^{-i}}$ (i = 1,2,3,4), and it is obtained:

$$\prod_{i=1}^{4} m^{2^{-i}} = L^4 \tag{1}$$

Where the logarithmic value (2) simply appears:

$$L = l\,\mathrm{og}_2\left(8\pi\right) \tag{2}$$

Let us write (1) in the developed form, (3):

$$h^{1/2} * z^{1/4} * w^{1/8} * g^{1/16} = L^4 \tag{3}$$

Or with dimensional values (4)

$$H^{1/2} * Z^{1/4} * W^{1/8} * G^{1/16} * fp^{-15/16} = L^4 \tag{4}$$

The exponent over a fundamental particle is: the negative sum of the exponents over the bosons, which makes the formula dimensionally correct. I consider that formula (3) is a confirmation of hypothesis ***a)***.

From (3) we can determine the mass of any boson from the others; we show that for gluon in (5):

$$G = fp * L^{64} * h^{-8} * z^{-4} * w^{-2} = 2{,}10642882 * 10^{-31}\,kg \tag{5}$$

In this article: photons are omitted although they can also be calculated later.

The mass of the following virtual particle can also be important:

$$H_v = m_f \left[\log_2\left(2\pi\acute{\alpha}\right) * \log_2\left(8\pi\right)\right]^2 = 2,2390472 * 10^{-31} kg \qquad (6)$$

Which is slightly larger than the mass of the Higgs boson.

2. Conclusion

It has been shown how one, only formal action: presenting data dimensionless, can simplify the process of scientific knowledge many times over.

The significance of the Hypothetical Fundamental Particle in relation to which we determined the dimensionless values of the masses was confirmed.

The values of the exponents of the bosons $\mathbf{2}^{-i}$ have been determined, where $\boldsymbol{i}$ is an integer.

The results would not be possible: without thinking from the angle of my theory [4], the inevitable theory of everything [2] and the relationalist approach [5]. I think that it is necessary for everyone who wants to understand the universe: to try to adopt the knowledge from [2]. Limited number of understandings of Ruđer Bošković: it has been confirmed to date (none has been refuted) and for the other we are waiting for those who will confirm them.

This article can also be understood as an announcement: a layman in the field of particle physics, unencumbered by main stream theories.

3. References:

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