

About mass: What is the mass of the fundamental particle?

Yusupov R. A.

free researcher, dialectic materialist

Virtual University, laboratory of dialectic materialism, physics and cosmology

690018, Vladivostok, USSR

August 2013 – September 2015

Within the framework of a hypothesis of the author's model of a universe (YRA-model) the Universe is considered as the cosmological dilated material object having a center. In the center of the Universe the material core (body) which we will name the Singularity is located. The Singularity in the rhythm of nature radiates the elementary clots of a matter which we will name an atom of the matter. The atom of the matter (AM) has the ball shape (a small material ball). The model of an atom of the matter is a constituent of the model of a universe. The model of the atom of the matter guesses that the atom of the matter is considered as two-uniform material object, as tandem «atom of the matter – fundamental particle» (AMFP). Within one step of a rhythm of the nature the tandem AMFP stays in two states. These states are a naturally state «atom of the matter» and a state «fundamental particle». To these states correspond the phases of the elementary unit of the time: the phase of AM and the phase of FP. The transition from one state of an atom of the matter to another and also back is carried out in the course of the quantum splash (eruption outburst) of a matter inside the atom of the matter. The quantum splash is the motion of the matter making an atom of the matter not studied by the modern science. It is possible to speak thereupon about "splitting" of the duration of the elementary unit of the time (EUT) onto two parts: TAM – duration of the AM phase and TFP – duration of the FP phase. It is represented quite probable that the relation of these durations is a fine structure constant. Probably to assume also that according to the "splitting" of the time for phases the "splitting" of the fundamental interactions takes place. Namely, in the phase of AM the gravitational interaction operates, and in the phase of FP the Coulomb interaction operates. The fundamental particles (electron, proton, neutron, etc.) also have the shape of the little material balls. The quantity of a matter in the fundamental particle is the same, as in an atom of the matter. It is the elementary unit of the matter. But the diameter of a fundamental particle considerably is more than the diameter of the atom of the matter. The mass of the fundamental particle is defined similarly to the mass of the atom of the matter. We will remind that the mass of the atom of the matter is the relation of the elementary unit of the matter to the diameter of the atom of the matter. In the mathematical formulas it is represented so:

$MAM \equiv EUM / EUL \equiv A^{0,125} \cdot UCN^{-0,25} \mu^{0,25}$. In this formula A is the absolute (terrain clearance)

age of the Universe in the dimensionless unities NSN. We will remind that it is the natural step of the nature (NSN), and that the equality takes place: $NSN \equiv UCN \cdot ESN$, where ESN – the elementary step of the rhythm of the nature. The ESN is simply one step of the rhythm of the nature and also it is the unit of the dimensionless time. The quantity $UCN=1,21034 +44$ is a unique constant of the nature or a cosmological stationary value. The dimensional time in YRA-model is defined through a matter as follows: first $EUT \equiv EUM$ for the elementary units of the time and the matter and second $NUT \equiv NUM$ for the natural units of the time and the matter. Let's designate MFP as the mass of the fundamental particle. Let's DFP will be the conventional sign of the diameter of the fundamental particle. The formula of the definition of the mass of the elementary particle will be such: $MFP \equiv EUM/DFP$. Considering the definition of the time $EUT \equiv EUM$, we come to the equality (identity):

$$\frac{DFP \cdot MFP}{EUT} \equiv 1,$$

here the unity on the right is a dimensionless quantity. Expression at the left part is a physical quantity of the momentum of the fundamental particle. This formula is the expression of the law of the nature for the momentum of the FP. For the atom of the matter there is the similar law of the nature:

$$\frac{EUL \cdot MAM}{EUT} \equiv 1.$$

Both these formulas possible to present in the view: $DFP \cdot MFP \equiv EUT$ ($EUL \cdot MAM \equiv EUT$) or in the numerical equivalent view: $\{DFP \cdot MFP\} \equiv UCN^{-1}$ ($\{EUL \cdot MAM\} \equiv UCN^{-1}$). Let's consider the graph of the function $md = UCN^{-1}$ in the rectangular Cartesian co-ordinate system «mass (m) – diameter (d)». The hyperbola will be the graph of this function. The atom of a matter and all the elementary particles will be presented on this graph (hyperbola) by the corresponding points. All aforesaid allows to say with full confidence that searches of the Higgs's boson or the «particle of god» is a false way. There is not any fundamental particle in the nature of the carrier of "pure" mass. The mass is related to each fundamental particle. The mass of the fundamental particle is derivative quantity of the matter containing in the fundamental particle and of its diameter. No «particles of god» and no god itself do not exist in the nature. In the base of the world surrounding us and of the nature lies the matter. The matter, only one matter and the laws of its motion and the development govern the world. The author expresses the gratitude to grandson Maksim for joint walks on the nature. During these walks the understanding of the device of a universe has come. The ideas concerning the fundamental particles have been presented in this article.