MCS Physics

Article 1

PARTICLE

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Abstract

This is the first in a series of short articles disclosing MCS Physics. Here I present the logic leading to conclude that (i) there is an elementary mass *eM*, which is the smallest mass in existence (thus also the smallest bundle of reciprocal mass - energy conversion according to $E=MC^2$), from a plurality of which any greater mass is composed; (ii) a fundamental mass particle (hereinafter abbreviated *EMP* for Elementary Mass Particle) exists, which caries the elementary mass *eM*; (iii) what we use to name elementary particles are actually composed constructions comprising multitudes of *EMP*; and (iv) Each *EMP* comprises a mechanism capable of receiving a particular input from its environment and of returning a particular output to the environment, within a particular time frame. The mechanism results in both: acquiring mass and generating gravity.

About MCS Physics

In a first broad aspect MCS Physics is a particle theory of gravity. Other aspects shall be introduced in the articles that follow.

I have started developing the theory on July 2009, and I can now appreciate its uniqueness in two main characteristics:

First, it is chaperoned by a methodological deduction of hidden features of observable constituents of reality. The theory, thus, to the deepest imaginable extent, reveals comprehensible mechanisms, rather than abstract ideas.

Second, it has an extraordinary prediction power, which strengthens the relevance of the logic underlying the deduced mechanism. Based on the same predetermined set of four sub particle level interactions concluded, the theory is obliged to explain any gravity related phenomenon.

I welcome criticism, to the point. Support your criticism by experimentally verified facts, not by hypotheses based on other theories. Use my website or my e-mail to post your insights, contributions, criticism, language & grammar corrections.

The workings of particles

Outcomes of interactions between particles are predicted in modern physics by associating particles with fields, having rules of their own, which determine the nature and magnitude of the interactions between the bodies carrying them. Modern physics does not refer, however, to the mechanism by which particles **generate** fields. Instead, it relates to fields as given features of particles. By saying "given features" I mean physicists relate to a particle as an entity providing for an output field independently of any sort of input. For example, the charge of an electron is of a predetermined

value, is an inherent feature of the electron, and it determines its electric field throughout the cosmos independently of any input.

A kind of exception to the silence of modern physics about the conception of mutual dependency between a particle and its surrounding field is inferable from Mach's principle, which assumes a particle's inertial mass is not a given feature of a particle, rather a function of the total universal mass . Since the mass of the particle itself contributes to the total universal mass, Mach's principle implies that each particle receives an input (from all universal particles) and returns an output, which does depend on the input.

Regardless, however, of Mach's principle (which, from MCS perspective, is undoubtedly deceptive in any of its diverse interpretations[♠]), it is clear that the existence of a particle can only be recognized by the effects it exerts (through its fields, or by contact of its construction, should it have one) on another particle, which in turn has fields (and construction, if any) of its own, affecting the first particle. The idea that the fields associated with one particle are product of input field constituents it receives from its environment may thus not be falsified: our experience teaches us that particles that affect others by fields, are also affected, by fields of the same nature. Since affecting others involves energy transfer[1], it is appreciable that the generation of fields involves absorbance of field constituents.

Based on the logic of above, and alternatively based on free inventiveness, we can legitimately (i.e. as long as not experimentally disproved) assume that a particle associated with a field (i.e. a particle capable of exerting non-contact forces) is a kind of machine[2], i.e. no less and no more than a mechanism capable of receiving a particular input and of returning a particular output.

Particles and mass

Referring now to particles having a gravitational field, the mechanism responsible for generating such a field (as deduced above, by receiving a particular input and returning a particular output), i.e. the mechanism by which gravity is produced should be explored in view of the fact that elementary particles of different types differ in their masses. This is a good starting point for investigating gravity, because if a particle is a mechanism, as defined above, which is capable of receiving a particular input and of returning a particular output, it worth inquiry why would different elementary particles differ in their masses.

Are particles of different masses have gravity producing mechanisms differing in scale or in type, or do they just contain different quantities of the same basic mechanism? Are they acquire their different masses due to different type or scale of mass acquiring means, or do they just contain different quantities of the same basic means? Is the mass acquiring means of a particle is the same mechanism responsible for generating gravity fields (or as more commonly asked: are gravitational mass and inertial mass one)?

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[1] Though I came to this conclusion relying on energy conservation, in articles to follow it shall become clear that the full story is quiet different.

[2] Not a one obeying the laws of Newtonian mechanics, but a one that originates them.

Considering the following three experimentally verified facts –

- the effect of mass on gravity is accumulative, i.e. the gravitational effect of two identical particles is as twice as that of one, and so forth;

- mass and energy are mutually convertible according to the Einsteinian equivalence E=MC^2; and

- energy comes in quanta, exemplified e.g. by the energy associated with the quantum angular momentum (spin) of particles, and by the discrete energy levels of electrons in atoms;

we are allowed to make the following assumptions -

(i)   energy $E = h \cdot v$ and mass $M = E/C^2$ are mutually convertible **in quanta**, i.e. there exists an elementary mass unit *eM* of a magnitude $h \cdot v_n/c^2$ which 'v_n' is a natural[3] predetermined frequency of its wave property, and this mass unit is carried by an elementary mass particle *EMP*, the mass of which[4] is $eM = h \cdot v_n / C^2 = v_n \cdot 7.37 \cdot 10^{-51} kg$; and that

(ii)   the entities usually named 'elementary particles' are actually composite constructions comprising multitudes of *EMP*s, the total number of which, *N*, in each specific particle is equal the mass of the particle divided by *eM*.

Accordingly, particles of different masses need not have different types of gravity producing mechanisms, nor need they acquire mass by a separate mechanism. One type of gravity and mass producing mechanism – the one constituted by the *EMP*, may be suffice for explaining the gravity generated, as well as the mass acquired, by all known particles in nature.

But can we know more about the mechanism itself? As we shall see, we can. Not only we are on the track of concluding that this mechanism governs our universe, we will also be able to retrieve information regarding the intrinsic properties of the inputs and outputs treated by the mechanism, and regarding its involvement in physical processes unrelated yet to gravity.

A consequent, supplementary, conclusion in a parenthetical clause: the frequency *v* of a particle's wave property, is in correlation with the number *N* of *EMP*s constituting the particle:

$$v = N \cdot v_n$$

The way particles' frequencies are correlated with the total number of *EMP*s they contain is the subject for an article to follow.

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[3] "natural predetermined" is not a completely accurate description of this frequency. It will take a few more articles and a few more issues to discuss before the full meaning and origin of this frequency can become apparent.

[4] Not to be confused with Planck mass

Since a plurality of *EMP*s may be integrated into composed constructions, forming particles of different masses, I hypothesize that further to its being a mechanism, each *EMP* comprises a structure that is attachable (presumably by contact) to corresponding structures of other *EMP*s to form composite structures, in addition to its gravity producing mechanism. In order to distinguish between the particle as a whole (*EMP*), and its gravity generating mechanism, the mechanism will sometimes be referred to as *GG* (=gravity generator).

In the next article, titled **EMP and time**, some hidden properties of the *GG* mechanism will be logically deduced.

Article sum up

(i) there is an elementary mass *eM*, which is the mass of a most fundamental particle *EMP*, from a plurality of which all greater masses are composed.

(ii) what usually named elementary particles are actually composed constructions comprising multitudes of *EMP*s.

(iii) Each *EMP* comprises a single *GG*, which is no less and no more than a mechanism capable of receiving a particular input from its environment and of returning a particular output, within a particular time frame. The mechanism is responsible for both acquiring mass and generating gravity.

(iv) each *EMP* further comprises a basic structure attachable by contact to corresponding structures of other *EMP*s to form composite structures.

Glossary

eM elementary mass**,** the smallest bundle of mass at existence, the smallest bundle of mass sustaining $E=MC^2$

EMP elementary mass particle**,** a particle with a mass *eM*

v_n the natural predetermined frequency of the wave property of an *EMP*

GG gravity generator, the gravity and mass producing mechanism of an EMP

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Further reading

[♠] Julian B. Barbour,Herbert Pfister, Mach's principle: from Newton's bucket to quantum gravity

(1995), The Center for Einstein Studies, Boston University