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New Data Leading to the Conclusion that Matter does not Attract but Repel Antimatter

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Abstract

Today, physics accepts that matter and antimatter been attract, with a force proportional to the electromagnetic force. The theory of the Big Bang, which is also the established theory for the creation of the Universe, is based on this assumption. According to the Big Bang theory, at the beginning of the creation, more matter than antimatter was created. So after the self-destruction between matter and antimatter, due to the strong attraction between them, a large amount of matter remained that created the Universe.

In contrast to the Big Bang theory, the theory of the Chain Reaction, which is an alternative theory for the creation, accepts the opposite, namely that matter and antimatter been repel with a very weak force, opposite and proportional to the force of the attraction of two masses. So, according to the Chain Reaction theory, at the beginning of the creation, equal amounts of matter and antimatter were created, which due to their repulsion separated and matter created the Universe and antimatter the antiuniverse. May be and many other Universes and antiuniverses as well.

Up to date no theoretical or experimental proof has been given by the established science to the acceptance that matter attracts antimatter. On the contrary, the author of this paper, who is also the author of the Chain Reaction theory, gives a clear proof that leads us to the conclusion that matter repels antimatter, at the same time he also calculates the force of this repulsion, which is equal but opposite to the force of the attraction of two masses.

Keywords: Antimatter; Electromagnetic force; Self-destruction; Repulsion; Multiple universes

Introduction

Matter is made up of small particles, the atoms. Atoms consist of a nucleus with a positive electrical charge, around which revolve electrons that have a negative electrical charge. The nuclei of the atoms are made up of other smaller particles, the protons and neutrons. Protons and neutrons in turn are made up of other smaller particles, the up and down quarks, which together with electrons were considered to be the elementary particles, i.e. the smallest subdivisions of matter [1].

In 1931, it was supported by the talented British physicist Paul Dirac that for every particle of matter, correspond a particle of antimatter, i.e. an antiparticle. Antiparticles have the same mass as particles, but have an equivalent, opposite electrical charge. In fact, in 1933, the first antiparticle was discovered, the antiparticle of the electron, which physics called positron. The positron has an electric charge equal to the charge of the proton but a mass equal to the mass of the electron. Subsequently, many other antimatter particles were discovered and slowly it was established that for every matter particle, there is an antiparticle. Matter particles create the matter we all know and antimatter particles, the antiparticles create antimatter. In short, antimatter is something like a mirror image of matter [2].

Method

Today, apart from the infinitesimal amounts of antimatter that are created and detected in microparticle accelerators, for example when protons collide with each other, antimatter is not detected anywhere else in the visible Universe and you ask the question. What happened to antimatter?

- The answer given by the Big Bang theory is that matter attracts antimatter with a force proportional to the electromagnetic force. At the beginning of the creation, more matter than antimatter was created. So after the self-destruction between matter and antimatter, due to the strong attraction between them, there remained a large amount of matter that created the Universe. But the theory cannot prove the attraction of matter and antimatter. At the same time it cannot explain how and why at the beginning of creation more matter than antimatter was created. Also the acceptance

that matter and antimatter are attracted does not explain the phenomenon of the accelerated motion of galaxies and many other acceptances of the theory [2].

- The answer of the Chain Reaction theory, about what became antimatter, is that matter and antimatter do not attract but repel each other with a very weak force opposite and proportional to the force of attraction of two masses. Due to this repulsion, matter and antimatter separated and matter created the Universe and perhaps many other Universes, and antimatter the antiuniverse and perhaps many other antiuniverses. At this point it should be noted that the repulsion between matter and antimatter led the antiuniverse and the rest of the universes and antiuniverses to enormous distances, exponential to the dimensions of our Universe, so great that with today's scientific data they are in no way detectable [3].

The Chain Reaction theory does not simply accept that matter repels antimatter, but also provides the proof of the relative acceptance, as we describe in detail in the next section. It also calculates the force of repulsion between matter and antimatter, which is not equal to the electromagnetic force, as science accepts today, de facto and without proof, but is equal and opposite to the force of the attraction of two masses. By accepting that matter and antimatter repel each other, the Chain Reaction theory also explains all the cases mentioned above that cannot be explained by the Big Bang theory [4]. I will not mention any other details as it is not the subject of this paper, that it is simply the proof that matter repels antimatter as I describe next.

Results and Discussion

The proof that matter repels antimatter

We get the following three combinations of atoms of hydrogen and antihydrogen, namely: a) Hydrogen-Hydrogen (b) Antihydrogen-Antihydrogen and c) Hydrogen-Antihydrogen, as shown in detail in **FIG.1**, then we will have:

- **For the case of figure 1(a), (Hydrogen-Hydrogen attraction):** If we characterize with Σx the total of electron-proton interactions (positives or negatives), that (created either by electromagnetic forces, or by masses attraction, or by inertial forces, or by any other forces, etc.), with Σy total of electron-electron interactions and with Σz the total of proton-proton interactions and:

If we characterize with F the force of the attraction between the two atoms of Hydrogen, with r their distance, with M_y their masses and with G the global constant we will have (**FIG.1**):

$$F = 2\Sigma x + \Sigma y + \Sigma z = G\frac{M_y \times M_y}{r^2} \tag{1}$$

- **For the case of figure 1(b) (Antihydrogen-Antihydrogen attraction):** For the interactions of antielectron-antiproton, antielectron-antielectron and antiproton-antiproton we have exactly the same numerical results Σx, Σy and Σz as we had in the first case and:

If characterize with F′ the force of attraction between the two atoms of antihydrogen, with r their distance, with M* the masses of antihydrogen atoms and with G the global constant we will have:

$$F' = 2\Sigma x + \Sigma y + \Sigma z = F = G\frac{M^*_y \times M^*_y}{r^2} \tag{2}$$

In other words, we observe that in the case of two antihydrogen atoms we have exactly the same result, (something that was expected), with the forces F and F′ being equal to each other.

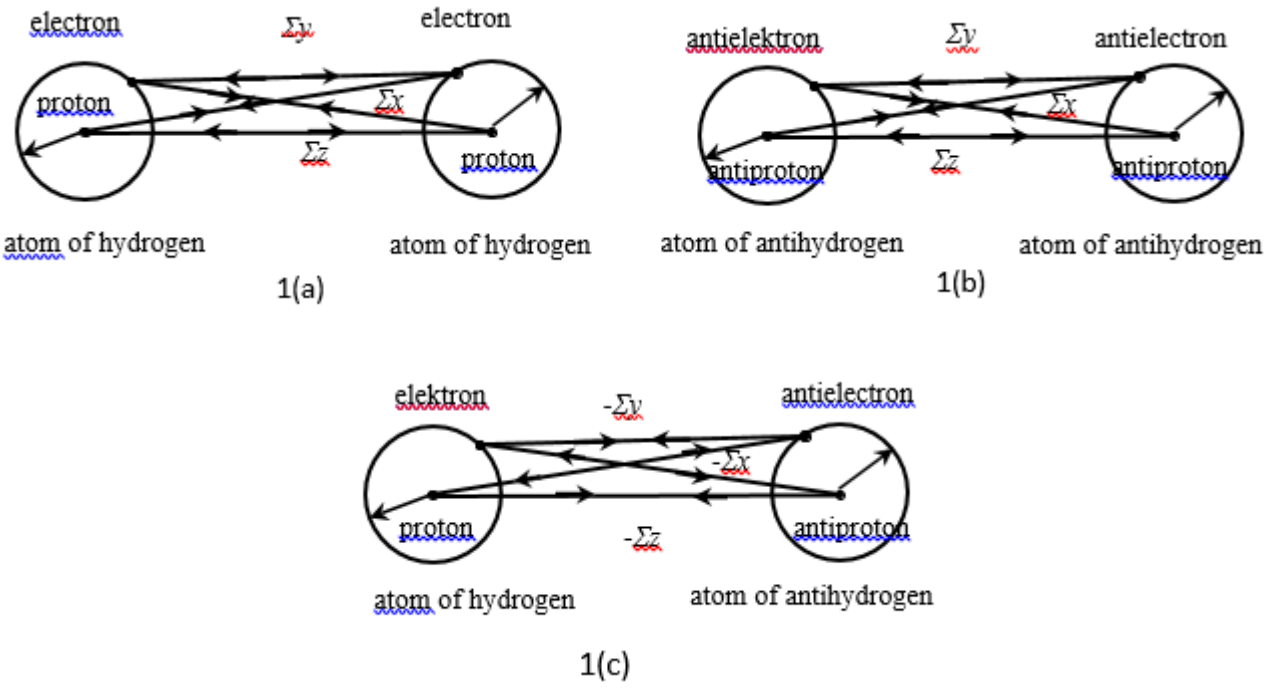

FIG. 1. **The combinations of interactions between atoms and antiatoms of Hydrogen and antihydrogen.**

- **For the case of figure 1(c) (Hydrogen-Antihydrogen repulsion):** For proton- antielectron, electron-antiproton and electron-antielectron interactions, we have exactly the opposite results of the paragraphs a and b, i.e. the total sets, -Σx, -Σy and -Σz so:

In other words, we observe that in the case of two antihydrogen atoms we have exactly the same result, (something that was expected), with the forces F and F′ being equal to each other.

- **For the case of figure 1(c) (Hydrogen-Antihydrogen repulsion):** For proton- antielectron, electron-antiproton and electron-antielectron interactions, we have exactly the opposite results of the paragraphs a and b, i.e. the total sets, -Σx, -Σy and -Σz so:

If we denote by F* the force of interaction between the two atoms of Hydrogen and antihydrogen, by r their distance, by M_y the mass of hydrogen, by M* the mass of antihydrogen and by G the global constant we will have:

$$F^* = -2\Sigma x - \Sigma y - \Sigma z = G\frac{M_y \times M^*_y}{r^2} = -F \tag{3}$$

Comparing the above relations (1), (2) and (3), we notice that the two forces, namely F which is the attraction between two Hydrogen atoms or two antihydrogen atoms and F* which is the interaction of a Hydrogen atom with an atom antihydrogen is exactly equal but opposite forces. In other words, we conclude that two Hydrogen atoms attract each other as do two antihydrogen atoms, while a Hydrogen atom and an antihydrogen atom repel each other.

Generalizing the above proof, we conclude that:

“Atoms attract each other, and so do antiatoms, but atoms repel antiatoms with equal force and therefore matter and matter attract, antimatter and antimatter also attract, but matter and antimatter repel with the same force.”

Judgments and Conclusions

The proof of the previous section would not have any fundamental importance for Theoretical Physics and Cosmology if the case of the attraction or repulsion between matter and antimatter was not one of the decisive elements in the definitive establishment of the Big Bang theory or the Chain Reaction theory. While the Big Bang theory accepts this element to prove how matter destroyed

antimatter and with the amount of matter that remained the Universe was created, but on the other hand the Chain Reaction theory accepts the opposite view to prove how matter separated from antimatter and matter created the universe and the other universes and antimatter created the antiuniverse and the rest of the antiuniverses that all together formed the Cosmos.

But then again the proof that matter repels antimatter would not so important if the views of the Big Bang theory and the Chain Reaction theory at this point were not opposed to each other, something which makes their coexistence problematic. So in this case, the established science must to choose which is the correct answer, does matter attract antimatter? Something established de facto without any theoretical or experimental proof, or the opposite? As I theoretically prove in the previous section? I hope that some position of the science will be formulated relatively soon and not after twenty centuries as happened with the establishment of the heliocentric system.

I will conclude the paper with a related case described by Stephen Hawking in his book: A Brief History of Time where it is clearly seen, how the two opposing views whether matter attracts or repels antimatter can lead us to wrong conclusions and opinions very far from reality. Hawking writes in his views on antimatter that: There may be entire antiuniverses and antihumans made up of antiparticles. But if you see your opposite antihuman in front of you, don't greet him with a handshake. You will both disappear together in a big flash.

Regarding the first part of Hawking's description, that there may be entire antiuniverses of antimatter, the question arises is, how we can accept such a case, when the Big Bang theory accepts that, antimatter does not exist, since it has been destroyed by matter. As for the second part of the description that if you meet your antihuman, do not greet him because you will both be disappeared in a big flash. Perhaps even in this case, Hawking is wrong again, since according to the view that matter repels antimatter, such a case will never happen, but even if it does, don't be afraid, greet your antihuman politely and shake his hand, you won't get hurt at all.

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