Errors in Nobel Prize for Physics (5)

—Improper Exclusion Principle and Man-made Law

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Abstract: One of the reasons for 1945 Nobel Prize for physics is “for the discovery of the Exclusion Principle, also called the Pauli principle”. It has been found that bosons are not subject to the Pauli exclusion principle. This paper argues that in some cases the exclusion principle is also invalid for fermions. The reasons are as follows: first, according to Neutrosophy, any proposition has three situations of truth, falsehood and indeterminacy respectively; second, some scholars have pointed out that the exclusion principle may be broken in high-energy state; third, due to the existance of man created law (man-made law), the broken exclusion principle and the man-made (instantaneous) magnetic monopole can be artificially created; fourth, the exclusion principle is not compatible with law of conservation of energy, and in physics the principles that are not compatible with law of conservation of energy will be invalid in some cases.
Key words: Exclusion principle, error, law of conservation of energy, man created law (man-made law), man-made (instantaneous) magnetic monopole

Introduction

One of the reasons for 1945 Nobel Prize for physics is “for the discovery of the Exclusion Principle, also called the Pauli principle”. However, it has been found that bosons are not subject to the Pauli exclusion principle. Then there is the question: whether or not that in some cases the exclusion principle is also invalid for fermions? This paper tries to discuss this issue from four aspects.

1 According to Neutrosophy, any proposition has three situations of truth, falsehood and indeterminacy respectively

Neutrosophy is a new branch of philosophy that studies the origin, nature, and scope of neutralities, as well as their interactions with different ideational spectra.

This theory considers every notion or idea <A> together with its opposite or negation <Anti-A> and the spectrum of "neutralities" <Neut-A> (i.e. notions or ideas located between the two extremes, supporting neither <A> nor <Anti-A>). The <Neut-A> and <Anti-A> ideas together are referred to as <Non-A>.

Neutrosophy is the base of neutrosophic logic, neutrosophic set, neutrosophic probability and statistics used in engineering applications (especially for software and information fusion), medicine, military, cybernetics, and physics.

Neutrosophic Logic is a general framework for unification of many existing logics, such as fuzzy logic (especially intuitionistic fuzzy logic), paraconsistent logic, intuitionistic logic, etc. The main idea of NL is to characterize each logical statement in a 3D Neutrosophic Space, where each dimension of the space represents respectively the

truth (T), the falsehood (F), and the indeterminacy (I) of the statement under consideration, where T, I, F are standard or non-standard real subsets of]-0, 1+[without necessarily connection between them.

More information about Neutrosophy may be found in references [1,2].

Because the exclusion principle is invalid for bosons, the viewpoint of Neutrosophy that "any proposition is falsehood in some cases" has been vindicated.

Similarly, according to the viewpoint of Neutrosophy, the exclusion principle also should have three situations of truth, falsehood and indeterminacy respectively for fermions.

2 Some scholars have pointed out that the exclusion principle may be broken in high-energy state

It is well known that some scholars have doubted the validity of exclusion principle.

For example, in reference [3], it presents that for high-energy celestial bodies such as neutron stars and the like, the broken Pauli exclusion principle will be observed; and points out that the exclusion principle may be broken in high-energy state.

3 The broken exclusion principle and the man-made (instantaneous) magnetic monopole can be artificially created

The conventional viewpoint considers that man cannot create law. This is a one-sided viewpoint. In some cases, man can create law, including change the rule into law. So the laws can be divided into at least three kinds: the objective law, the man created subjective law, as well as the synthetic law formed by the above mentioned two kinds of laws.

Now we discuss various man created laws (man-made laws).

In the social science: (1)in stock market the banker created the law of stock, (2)for various goods,the wholesale price calculation formula is decided by the owner, (3) the laws of Chinese new year firecrackers and the Mid-Autumn Festival cake.

In the natural science: (1)the law of gravity and the theory of general relativity were created by Newton and Einstein respectively, (2)some geometries built from a set of axioms, (3)various carry-systems in mathematics, (4)the operation of fountain with man created law, (5)the temperature law of the greenhouse.

In thinking science: one divides into two or one divides into three (such as the three worlds) and one divides into five (such as the five elements in Chinese ancient times), and the different laws to learn the knowledge such as the sequence of easy-difficult or difficult-easy.

In the virtual world (the laws don't need to be tested by practice): (1)in science fiction the Hubble constant can be given arbitrarily as well as the speed of airship can reach ten thousand times of the speed of light, (2)in the ancient Chinese novel “The Pilgrimage to the West”, Tang Monk’s law to punish the Monkey King, (3)in artistic works the law of the hero and the beauty, (4)the law to steal vegetables from the online game.

Finally the optimum synthetic law formed by subjective law and objective law, such as Earth's best seasonal variation, can be created by people.

In physics, the man-made laws have not been paid enough attention. However,

some scholars have presented some issues connected with man-made laws. For example, some scholars say that "magnetic monopole" can exist. "magnetic monopole can exist" is a man-made law, because in nature "magnetic monopole" does not exist.

Now, we give an artificial method to create "man-made (instantaneous) magnetic monopole".

Suppose there is a long uniform rectangular-shaped magnet, along its middle section (the demarcation section of N-pole and S-pole) to cut it at very high speed, as the disconnected instant moment, one half of the magnet is the pure N-pole, and the other half is the pure S-pole.

Due to the existence of man-made laws, especially the "man-made (instantaneous) magnetic monopole" can be created as above mentioned, we can say that the broken exclusion principle can be artificially created for fermions.

4 The exclusion principle is not compatible with law of conservation of energy, and in physics the principles that are not compatible with law of conservation of energy will be invalid in some cases

Firstly the exclusion principle can be written as a symmetry form.

In order to connect the exclusion principle with a conserved quantity, supposing "1" (or any other constant) denote “valid”, and "does not equal 1" denote “invalid”, in this way the exclusion principle (denoted as P) can be written as the following form of conserved quantity

$$P=1$$

According to Noether's theorem, each continuous symmetry of a physical system implies that some physical property of that system is conserved. Conversely, each conserved quantity has a corresponding symmetry.

In reference [4] we already point out that for any symmetry, we can find the example of violation of symmetry or broken symmetry. As a kind of symmetry, the exclusion principle (P=1) cannot make an exception. As for the reason, in reference [4] we point out: there is no strict symmetry in nature. For example, the symmetry for law of conservation of energy cannot be the exception.

The prerequisite of law of conservation of energy is the existance of a closed system, but the strictly closed system does not exist, there are only approximately closed systems. Therefore, the symmetry for law of conservation is only approximately correct.

Although the symmetry for law of conservation of energy is only approximately correct, theoretically it could be considered as the unique symmetry in physics that is strictly correct. For other symmetries, they are correct only in the cases that they are not contradicted with this unique symmetry or they can be derived by this unique symmetry.

In reference [5], the examples deriving the improved Newton's second law and improved law of gravity according to law of conservation of energy are discussed. Namely deriving the symmetry for improved Newton's second law and symmetry for improved law of gravity according to the symmetry for law of conservation of energy.

In reference [5] we also point out: besides law of conservation of energy, all other laws of conservation in physics may not be correct (or their probabilities of correctness are all less than 100%). In reference [5] we also discuss the examples that law of

conservation of momentum and law of conservation of angular momentum are not correct (their results are contradicted with law of conservation of energy).

The essential reason for the exclusion principle may be invalid is that it does not take into account the law of conservation of energy, and in physics the principles that are not compatible with law of conservation of energy will be invalid in some cases

5 Conclusions

For the reason that the exclusion principle may be invalid for fermions, we can reach the following conclusions: In physics, the law of conservation of energy is the unique truth; for other principles, laws and the like, as they are established, the law of conservation of energy should be considered, otherwise they may be invalid in some cases; for many existing principles, laws and the like that do not consider the law of conservation of energy, we should renewly consider their relationship with the law of conservation of energy, in order to determine their fate or discuss the problems to modify them.

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