Six neutral fundamental interactions between four fundamental interactions

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Abstract: Besides the existing four fundamental interactions there must exist six neutral fundamental interactions (as six new forms of interaction) in accordance with the neutrosophy theory. For example, between strong interaction and weak interaction there exists intermediate interaction, namely neutral strong-weak fundamental interaction, it neither strong interaction nor weak interaction, but something in between. Similarly, other five neutral fundamental interactions are neutral strong-electromagnetic fundamental interaction, neutral strong-gravitation fundamental interaction, neutral weak-electromagnetic fundamental interaction, neutral weak-gravitation fundamental interaction and neutral electromagnetic-gravitation fundamental interaction. Thus, there are ten fundamental interactions all together.

Key words: Fundamental interaction, neutral fundamental interaction, neutrosophy

1 Introduction

This article presents the concept of neutral fundamental interaction.

According to the neutrosophy theory in philosophy [1], between an entity <A> and its opposite <AntiA> there exist intermediate entities <NeutA> which are neither <A> nor <AntiA>.

In reference [2], Prof. Smarandache pointed out that, between “matter” and “antimatter” there must exist something which is neither matter nor antimatter, let’s call it UNMATTER.

Besides unmatter (we call it the first neutral matter between matter and antimatter), in reference [3] other two neutral matters are given as follows, the second neutral matter between matter and dark matter, and the third neutral matter between antimatter and dark matter.

According to the neutrosophy theory in philosophy, we also can discuss the neutral fundamental interactions between the existing four fundamental interactions.

2 Six neutral fundamental interactions

As well-known, according to the present understanding, there are four fundamental interactions or forces: gravitation, electromagnetic, weak and strong interaction.

While, in accordance with the neutrosophy theory that between an entity and its opposite there exist intermediate entities, thus besides the existing four fundamental interactions there must exist six neutral fundamental interactions (as six new forms of interaction). For example, between strong interaction and weak interaction there exists intermediate interaction, namely neutral strong-weak fundamental interaction (NSW fundamental interaction), it neither strong interaction nor weak interaction, but something

in between. Similarly, considering other five pairs of opposite interactions: strong and electromagnetic fundamental interaction, strong and gravitation fundamental interaction, weak and electromagnetic fundamental interaction, weak and gravitation fundamental interaction, and electromagnetic and gravitation fundamental interaction respectively, other five neutral fundamental interactions are as follows: neutral strong-electromagnetic fundamental interaction (NSE fundamental interaction), neutral strong-gravitation fundamental interaction (NSG fundamental interaction), neutral weak-electromagnetic fundamental interaction (NWE fundamental interaction), neutral weak-gravitation fundamental interaction (NWG fundamental interaction) and neutral electromagnetic-gravitation fundamental interaction (NEG fundamental interaction).

Thus, there are ten fundamental interactions all together.

3 Properties of neutral fundamental interactions

We think that the properties of the six neutral fundamental interactions could be predicted or supposed with the properties of the existing four fundamental interactions.

Now we try to discuss the properties of neutral strong-weak fundamental interaction (NSW fundamental interaction).

(1)For strong fundamental interaction, the Relative Strength (Gravitation=1) is 10^{38}; for weak fundamental interaction it is 10^{25}; thus for neutral strong-weak fundamental interaction it is about 5×10^{31}.

(2) For strong fundamental interaction, the Range (unit: m) is 10^{-15}; for weak fundamental interaction it is 10^{-18}; thus for neutral strong-weak fundamental interaction it is about 5×10^{-17}.

(3) For strong fundamental interaction, the Mediator is gluons; for weak fundamental interaction it is W and Z bosons; thus for neutral strong-weak fundamental interaction it is something in between.

4 Conclusions

This article presents the concept of neutral fundamental interaction. The properties of the six neutral fundamental interactions could be predicted or supposed with the properties of the existing four given fundamental interactions. These six neutral fundamental interactions could be found in universe or created in laboratory.

References

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