Proton and electron model based on dark matter

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Abstract: *I constructed a relatively simple dark matter model a few days ago. After several days of thinking, I found that this dark matter model can also be used to explain some basic problems in modern physics. Among them, how are the gravitational field, electric field and magnetic field generated, and why the masses of electrons and protons are not equal, and so on. Considering that dark matter is an elastic medium, when there is energy, the elastic dark matter will be squeezed. At this time, the strain and stress generated by dark matter correspond to the bending and gravitational force of time and space. For electromagnetic interaction, it can be explained by the microscopic effects of dark matter molecules. If one considers that the "covalent bond" between dark matter molecules exists in both stretch and compression, it can be foreseen that the dark matter molecules are stretched, which means that the space occupied by the entire dark matter will expand. Considering that dark matter fills the universe, this also means that a part of dark matter molecules will be stretched, and another part of dark matter molecules will be compressed. If the stretched dark matter molecules are regarded as a negative electric field effect, the compressed dark matter molecules correspond to a positive electric field effect. Considering the Covalent bond force model inside the molecule, it is necessary to stretch and compress the same distance, and the energy required for compression is greater than the energy required for stretching. We can think of molecules being stretched as a negative electric field, corresponding to electrons. Compression is regarded as a positive electric field, corresponding to protons. This also means that the energy of the electron and the proton, that is, the mass, are not equal. Due to the existence of certain boundary conditions or Dirac charge quantization conditions, the charge and mass of all electrons or protons are equal. This can even provide a theoretical basis for the "multi-world" model: Planck's constant is different in different worlds.*

1 Introduction

There are many dark matter models. In order to better understand the relationship between dark matter and ordinary matter, a simple enough model can avoid the interference of complex mathematical derivation, so that we can focus on the physical mechanism. I constructed a very simple dark matter model a few days ago [1]. The model assumes that there are only two basic particles that make up dark matter, namely positive anzi and negative anzi. The signs of the two anzi are opposite and the masses are equal. Just like the electric field formed by positive and negative electrons.

With such a model, we can explore the structure of dark matter and its impact on the material world

we can observe. This allows us to deal with some basic issues of modern physics, including the origin of gravity, electric and magnetic fields; the masses of electrons and protons, and so on.

2 Dark matter molecular model

If dark matter can also be seen as ordinary matter, composed of the smallest elementary particles, then we can also construct a very simple Anzi dark matter model [1]. The model assumes that the most basic constituent particles of dark matter are Anzi with two different signs but equal masses, namely positive anzi and negative anzi.

Then a positive anzi and a negative anzi can be combined to form a dark atom. Two dark atoms can exchange anzi of the same sign to form a dark molecule. The interaction between dark molecules can form dark matter elastic body. This dark matter elastic body can be compressed or stretched to produce deformation. After the force of compressing dark matter is removed, the dark matter can be restored to a uniform distribution shape.

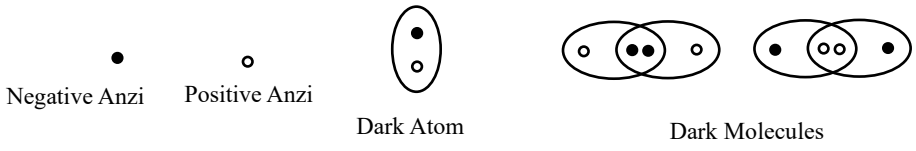


Figure 1. Dark particles, atom and molecule

Figure 1 shows the structure of anzi, dark atom, and dark molecules. The small solid circle represents negative anzi. The small hollow circle represents positive anzi. A positive anzi and a negative anzi combine to form a dark atom. Two dark atoms combine to form a dark molecule. Dark molecules are combined together through molecular interactions and finally constitute dark matter elastomers.

With such a dark matter model, we can use it to explain the propagation of gravitational waves [3] and electromagnetic waves.

If it is a gravitational wave, the dark matter elastic body can be compressed or twisted horizontally or longitudinally to form a wave similar to the sound in the medium. The propagation of waves caused by this change in dark matter density can be regarded as the propagation of gravitational waves.

For dark matter molecules, if the distance between the two dark matter atoms constituting the dark matter molecules changes, this vibration can also form a kind of wave propagation. It can be assumed that this wave is an electromagnetic wave.

In this way, dark matter can be interpreted as the medium through which gravitational waves and electromagnetic waves propagate.

3 Static gravity and electromagnetic fields

If the existence of energy does not cause the dark matter elastic body to vibrate, but only compresses or bends the dark matter around the energy or mass, then a gravitational field can be formed. This is like an elastic force that deforms an elastic body. Since gravity is a macroscopic effect, the quantization effect of gravity will be very small.

I have specifically calculated the relationship between gravitational waves and gravitational fields and the elastic deformation of dark matter in my two papers [2, 3].

If the existence of energy only causes the energy level of dark molecules to change. That is, after a dark molecule absorbs energy, the energy level of the dark molecule rises. After the dark molecule releases energy, the energy will be absorbed by the next dark molecule, increasing the energy level of the dark molecule. In this way, if it continues to spread, electromagnetic waves can be formed. Considering that electromagnetic waves are related to the energy level changes of dark molecules, it is a microscopic phenomenon. Therefore, the electromagnetic interaction is quantized.

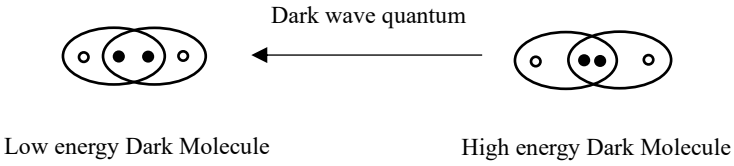
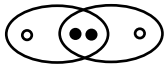


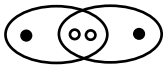
Figure 2. The energy level of dark molecules

Figure 2 shows the energy level changes of dark molecules. If a dark molecule is at a relatively high energy level, the dark molecule will be able to release dark wave quanta and pass it on to another dark molecule. Thereby forming electromagnetic waves.

Note that anzies are different from electrons and protons, and the masses of anzies of two different signs are equal. Therefore, dark molecules can be composed in two ways. Here, one of the dark molecules that share negative anzies are called an electrical dark molecule, and the other dark molecules that share positive anzies are called a magnetic dark molecule. As shown in Figure 3.



Electric Dark Molecule



Magnetic Dark Molecule

Figure 3. Two different types of dark molecules

Therefore, electric dark molecules are the medium for transmitting electric field vibration signals. The magnetic dark molecules are the medium that transmits the vibration signal of the magnetic field.

If it is an electrostatic field or a static magnetic field, it reflects the permanent polarization of electric or magnetic dark molecules until the electric or magnetic field is withdrawn.

4 Why are the masses of protons and electrons not equal

One puzzling question is why the masses of protons and electrons are so different? If we think that the electromagnetic interaction is based on the covalent bonds inside the dark matter molecules. It should help us understand why the mass of proton is so much greater than the mass of electron.

Figure 4 shows a model of the interaction force of covalent bonds inside dark molecules. It can be seen from the figure that when two dark atoms are very close, the interaction between the two dark atoms is repulsive force. The repulsive force is actually relatively large, as long as it is close to a little distance, a relatively large repulsive force will be formed.

Once the distance between the two atoms exceeds the equilibrium point, an attractive force is formed between the two atoms. Unlike repulsion, attractiveness is relatively weak. Once left a certain distance, the molecules will be separated into atoms or ions again.

We can think of repulsive force as a positive electric field formed by proton, and attractive force as a negative electric field formed by electron.

Since the dark molecules in the entire universe are always in equilibrium, the total amount of positive electric field and negative electric field are equal. That is to say, the total amounts of positive and negative charges are equal.

Then consider that the barrier formed by repulsion is much higher than that formed by attraction, which can also be used to explain why the mass of protons is greater than that of electrons.

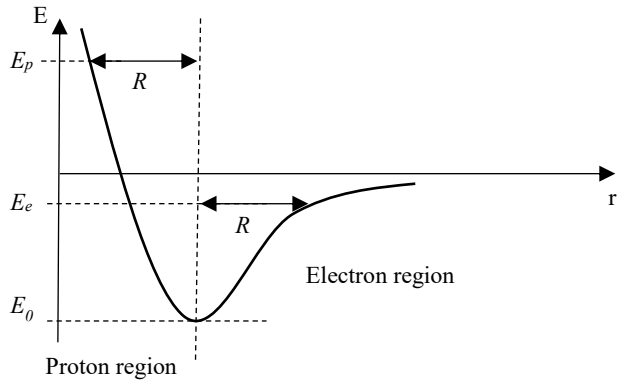


Figure 4. Covalent bond forces of Dark molecule

When approaching the repulsive force area, more energy is needed to penetrate the same distance.

If the positive charge of the proton will compress the covalent bond of the dark molecule, the entire dark matter will be compressed. A hole will appear at the position of the positive charge. And if the negative charge stretches the covalent bonds of dark molecules, the negative charge site needs more dark matter space to accommodate these dark molecules. Therefore, the space-time requirements of the dark matter for the positive and negative charges are the same.

Reflecting the interaction force of the covalent bond of the dark molecule, it means that the length of the positive charge compressing the covalent bond should be equal to the length of the negative charge stretching the covalent bond.

Corresponding to the dark molecule covalent bond force model in Figure 4, it can be seen that the energy required by the two is not equal. The energy of the positive charge is greater than the energy of the negative charge. This also means that the mass of positive charges is greater than that of negative charges. That is, the mass of protons is greater than the mass of electrons.

It can be seen from Figure 4 that for the attractive force in the electronic region, if the R length needs to be stretched, the energy required is E_e, and the repulsive force in the proton region needs to compress the same R length, and the energy required is E_p. Obviously

$$E_p > E_e$$

Using the mass-energy relationship for conversion also means

$$m_p > m_e$$

Here comes a question, why are the masses of all electrons or protons equal? An explanation may be related to certain boundary conditions of dark matter. Only when certain boundary conditions are met can the mass of electrons or protons be formed.

The other is from the interpretation of Dirac string, the energy of the electron region is continuous. However, only when the electronic charge quantization is satisfied, can the magnetic monopole (magnetic strange string) be displayed in real spacetime. Considering that the electrostatic field of the electron or proton is related to the energy of the electron or proton, the quantized charge also means that the mass of the electron or proton will be quantized.

If the second explanation is correct, it seems that it should be able to provide a theoretical support for the "multi-world" model. After all, as long as some of the physical constants change slightly, the conditions for charge quantization will also change, and naturally another brand new universe can be formed. Of course, the most important physical constant is Planck's constant.

5 Prospects for further researches

I am quite satisfied with such a dark matter model. It can explain the origin of gravity and electromagnetic interaction very well. More importantly, it explains why the masses of electrons and protons are not equal. And this is the problem that has been bothering me for a long time.

From the above analysis process, we can also see that the structure of dark atoms and dark molecules can be compared with substances composed of electrons and protons. Therefore, I believe that we can also use the existing knowledge of quantum mechanics to solve the problem of dark matter. For the next step, I plan to use quantum mechanics to solve the energy level problem of dark atoms and dark molecules. Perhaps this can help us directly calculate the mass ratio of protons to electrons. This will make my dark matter model more convincing.

References

[1] Cheng, Z (2021). A Simple Dark Matter Model. Relativity and Cosmology. https://vixra.org/abs/2107.0032.

[2] Cheng, Z (2021). The Energy of the Static Gravitational Field. Relativity and Cosmology. https://vixra.org/abs/2106.0166

[3] Cheng, Z (2021). A Simple Method to Obtain the Gravitational Wave Equations. Relativity and Cosmology. https://vixra.org/abs/2106.0068