

## **Explanation of the nature of negative, dark energy, and dark matter.**

Although contemporary cosmology and physics allow the mass to be pushed into the singularity (dimensionless point) in the center of black holes, it still doesn't understand that mass in such a state loses the quality of matter. Matter, being a substance and field, is the energy distributed in space. If we take away space from energy, it then changes to a different quality, to pure energy. Today it is often called the negative, dark energy, causing the expansion of the universe.

In my hypothesis of "Black Holes, or Just "Grey Objects"? " <http://vixra.org/abs/1706.0405>  
I describe the change of mass (substance and field), that is, the energy distributed in space, to pure (negative, dark) energy.

Dark matter behaves exactly as if roughly the same universes as ours existed in other, hidden dimensions, gravitationally acting upon each other. For example, "behind our" galaxy there are other ones, and so at galaxy level/galactic cluster level, gravity is "stronger" than at star level, because all universes are just as thin as ours. Therefore, it is unlikely that stars of universes in other dimensions are found in a "site with gravitational relation" to our Sun, but on the other hand, it is very likely and legitimate that there are other galaxies in other dimensions in a "site with gravitational relation" to our galaxy.

Negative, dark energy (pure energy) is energy released from a singularity, for example from the Big Bang. A small part of it had transformed into matter and radiation (that is, energy distributed in space), which causes the expansion of the universe to be hindered by gravity. The rest of the negative, dark (pure) energy causes the expansion of the universe (we could figuratively say that it is "explosion energy"). Because "Gray Objects" are created in the midst of older galaxies, mass in their singularities is extinguished into pure energy; we can directly say that dark energy, and thus the energy of the universe's expansion is growing and therefore the universe is expanding rapidly. All this takes place in all dimensions of the universe in a very similar manner, which also means in the universes of other dimensions.

Since singularity is zero-dimensional (dimensionless), it is no longer only part of our 3D universe, but it (and especially the energy in it) belongs to the universe as a whole, and thus to the universes in all dimensions. This is also true of Big Bang, which is also not just a matter of our 3D universe, but of universes in all dimensions.

There are four basic interactions acting in the world around us. Strong, electromagnetism, weak (I doubt that it's fundamental) and gravity. We explain all the phenomena around us using these four interactions.

Gravitation, however, significantly deviates from the other three by its force effects. Gravity is about 30 orders weaker than the other ones.

Therefore we suppose that the universe consists of more than three spatial dimensions that we can perceive. Gravity is so weak because it acts in all spatial dimensions. Thus, the gravitational force of an object located in our three-dimensional space is comparable to other interactions, but since it acts in more dimensions than 3 (in all of them) and in our space, it is just a part of it and therefore it is so weak.

In our three-dimensional space (or the four-dimensional time-space) we still have a problem explaining the coherence of galaxies and galactic clusters. Based on our calculations, the galaxies and galactic clusters should fall apart (fly in pieces) because, according to the circulation velocity of their objects, the centrifugal force should be greater than the coherent gravitational force caused in them by mass.

It is believed that they are held together by what we call "dark matter," which acts with additional gravity. It is not a matter we cannot see because it does not emit light or is not illuminated, or because it is "black". It is supposed to be matter (particles) that interacts with our world only in gravitational terms and in no other way.

I assume that dark matter is normal matter (normal material objects) in other spatial dimensions than our three. These objects also act with their gravity in our space, just like "our" objects act with their gravity in other, yet inaccessible dimensions.

After the Big Bang, universes were created in several dimensions. Mass clustered together after the infiltration phase. However, if we assume multidimensional gravitational effects, this clustering did not occur separately in individual universes, but in gravitational synergy. Thus, there are probably other galaxies in other universes "beyond" our galaxy. Going forward, we will use the term "gravitationally related site".

But why are there no other stars in other universes acting with noticeable gravity upon our Solar System in a gravitationally related site of our Sun? It is due to the fact that even universes in other dimensions are just as thin as ours and the star has a negligible influence (practically none) on the shape of the galaxy and the arrangement of the other stars in it. The star simply has to be there and move how the galaxy determines as a whole. This also applies to the relation of a galaxy – group of galaxies, unless a certain galaxy is incomparably larger than the others. In that case, the big one (for example, ours) can be determinative regarding the movement of the others.

This could create an interesting, hypothetical design. Our galaxy is large. At its gravitationally related site, there may be small galaxies in a universe in another dimension, orbiting a common center of gravity. The local cosmologist may be wondering why these small galaxies in their universe do not fly into the cosmos since they do not have enough mass to keep themselves in such orbits. The local cosmologist is wondering why our galaxy does not fly into pieces and must mentally project the "hoop" of the gravitational action of dark matter.

But a multidimensional cosmologist sees that the gravitationally related site of our galaxy is at the center of gravity, orbited by those small galaxies and that the "hoop" of gravitational action around our galaxy is created by the gravity of the small ones.

There is one more thing related to this issue. The theory of multiverse usually presupposes an infinite number of universes. I do not suppose this, and I think that the number of dimensions is infinite, but the number of universes is finite. Even if there was an infinite number of universes, only those universes that are similar to our universe in terms of gravitational action are relevant for the multidimensional gravitational action (explanation of dark matter). I suppose that there is a different distance from the gravitational view between universes of different dimensions.

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