Dark matter in phenomena

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Abstract: The article presents simple and cheap ways to study the density change of dark matter that exists all around us. We encounter these changes in the density of dark matter in our daily lives, but we do not notice them. The article presents how the density of dark matter changes under the influence of magnetisation, permanent deformation and heating.

Table of Contents

Introduction

Astrophysics is a branch of knowledge that deals with astronomical objects and studies the laws and physical processes that govern the Universe. One of the astronomical objects whose existence in the world of science is hypothetical so far is dark matter. The beginning of the discovery of the phenomenon, which astronomers and physicists now associate with the interaction of dark matter, dates back to 1933. In the same year, the Swiss physicist Fritz Zwicky, working in the United States, noticed that the speeds of motion of galaxies in certain clusters were too high. The position of the galaxies in a cluster depends on their mutual gravitational interactions. F. Zwicky calculated that at such orbital velocities as galaxies in the cluster, the gravitational force of the cluster is not sufficient to it to hold the galaxies within the cluster. Then F. Zwicky suggested that the object - although it is invisible but has a gravity effect on galaxies - should be called dark matter.

Amendments to Newton's law of universal gravitation

Currently, gravitational interactions between celestial bodies are calculated according to Issac Newton's universal law of gravitation (more on the amendments later). Newton's formula for universal gravitation shows the magnitude of the force with which two bodies act upon each other by gravity. But we should rather talk about acceleration. Because in the third law of Newton's laws of motion, although it tells of the equality of forces with which two bodies gravitationally interact with each other, in fact this principle in a hidden form represents the gravitational law of Galileo. And the Galilean law says that in the gravitational field of a given body, any other body, regardless of its own mass, gets the same acceleration. This law also says that the magnitude of this acceleration depends on the weight of the body causing the acceleration.

The force which Newton presented in the law of gravity and in the laws of motion is a secondary concept. The force was presented as the product of the mass of a given body and the acceleration that this body gets under the influence of the gravitational effect on

the other body. Force (as a concept) is now presented in physics as the cause of motion. In fact, it plays in science today a role similar to that of gods and angels in religions in the old days, that is, according to the widespread popular view in science, force contributes to the existence of motion and is the cause of all phenomena. Whereas, in fact, acceleration is the primary cause of the motion of bodies and phenomena. And about the real, absolute cause of the gravitational acceleration of bodies towards each other, one can create various ideas that will never describe the real cause.

Thus, it would make sense to use the concept of "gravitational action" and treat it as a different version of the concept of "gravitational acceleration", and in the considerations of the concept of "force" can be omitted.

From the time of Newton's discovery to our times, the Newton formula has been used in scientific calculations of the gravitational action. (Einstein's corrections are neglected here.) That is, gravitational acceleration is assumed to change inversely with the square of the distance. Meanwhile, it has long been known that the formula by which gravity is represented is inaccurate. A. Einstein tried to remove this inaccuracy when he was creating the general theory of relativity. But in spite of his creativity, he did not solve the problem.
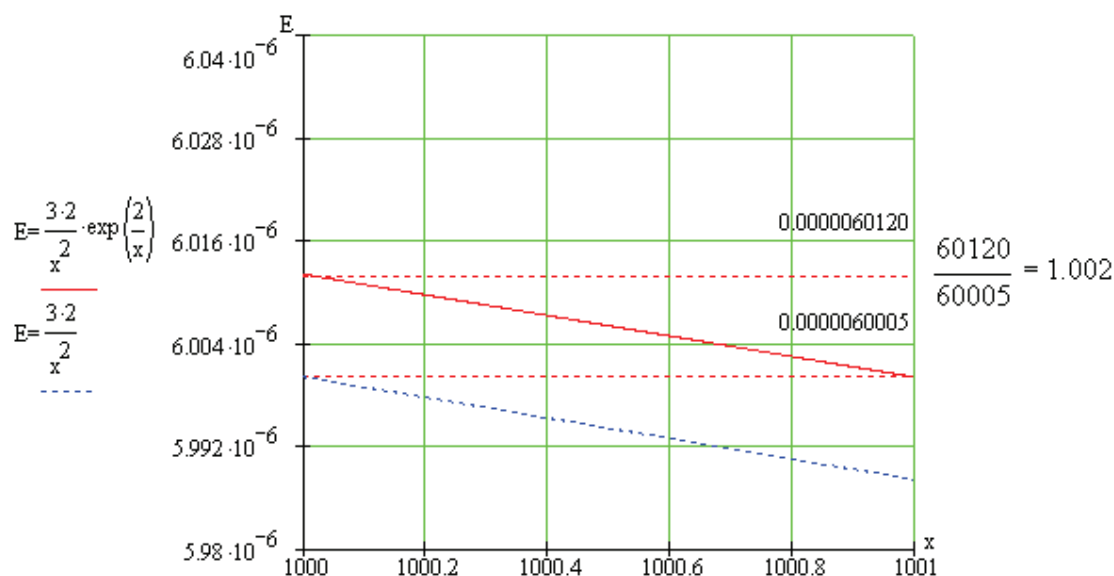
The inaccuracy in Newton's law of gravity can be corrected to some extent. You can simply change the structure of Newton's mathematical formula by adding an exponential factor in the form of exp(2/x) to the formula. An example of such a change is presented in the two figures below.

$$E = \frac{3 \cdot 2}{x^2} \cdot \exp\left(\frac{2}{x}\right)$$

$$E = \frac{3 \cdot 2}{x^2}$$

$$\frac{6126}{6004} = 1.02$$
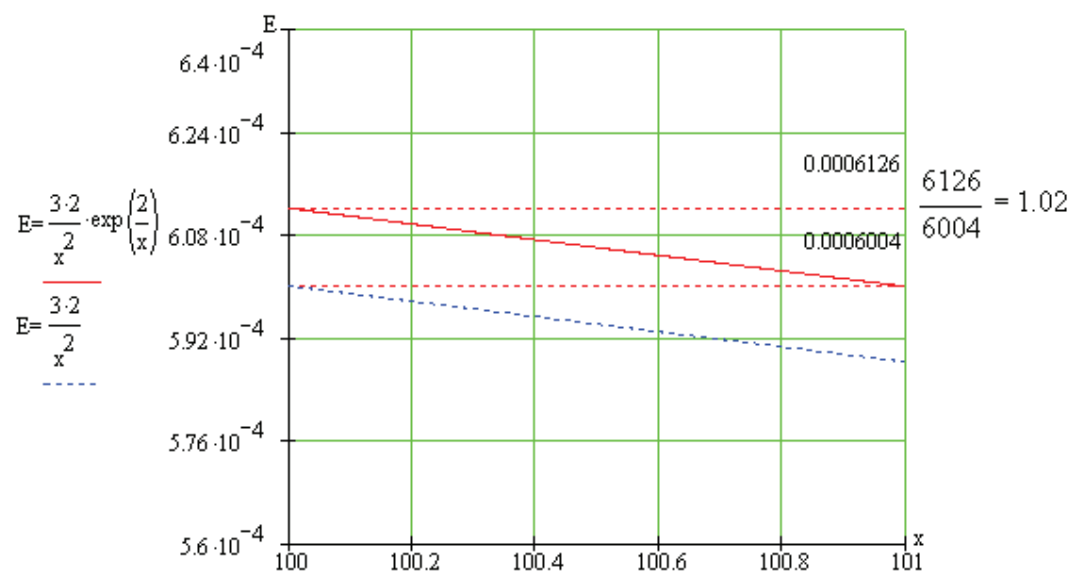
Eksponencjalna funkcja grawitacyjnego przyspieszenia przy x = 100 - porównanie z funkcją według Newtona
Экспоненциальная функция гравитационного ускорения при x = 100 - сравнение с функцией по Ньютону
Exponential function of gravitational acceleration at x = 100 - comparison with the function according to Newton

$$E = \frac{3 \cdot 2}{x^2} \cdot \exp\left(\frac{2}{x}\right)$$

$$E = \frac{3 \cdot 2}{x^2}$$

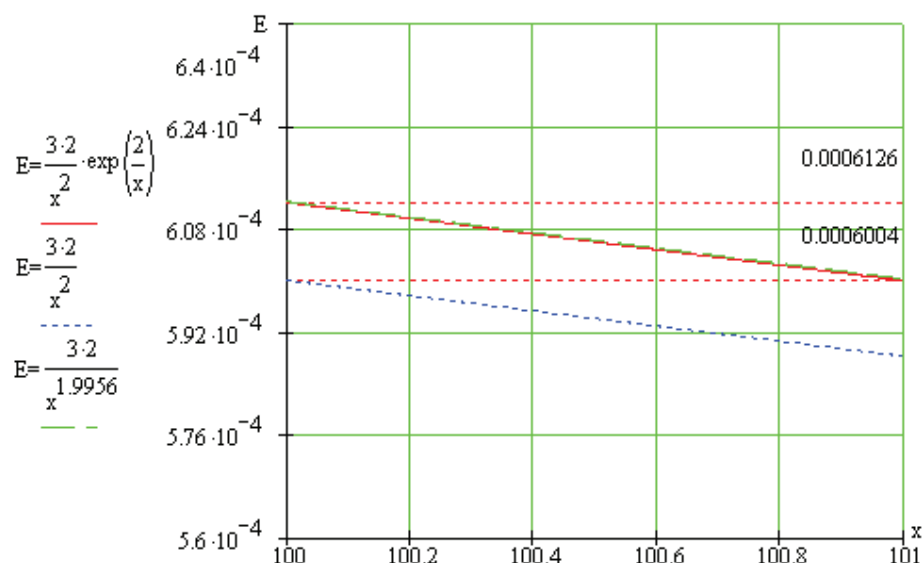0.0000060120

0.0000060005

$$\frac{60120}{60005} = 1.002$$

Eksponencjalna funkcja grawitacyjnego przyspieszenia przy x = 1000 -
porównanie z funkcją według Newtona
Экспоненциальная функция гравитационного ускорения при x = 1000 -
сравнение с функцией по Ньютону
Exponential function of gravitational acceleration at x = 1000 -
comparison with the function according to Newton

The coefficients used in the formulas (in the form of numbers 2 and 3) were chosen freely.
They only serve to present the slight difference between the values of gravitational
acceleration when there is an exponential factor in the formula and when there is no
exponential factor. Looking at the figure below, you can guess that the exponential factor
can be omitted and the exponent 2 in the denominator replaced with a different exponent.

$$E = \frac{3 \cdot 2}{x^2} \cdot \exp\left(\frac{2}{x}\right)$$

$$E = \frac{3 \cdot 2}{x^2}$$

$$E = \frac{3 \cdot 2}{x^{1.9956}}$$

0.0006126

0.0006004

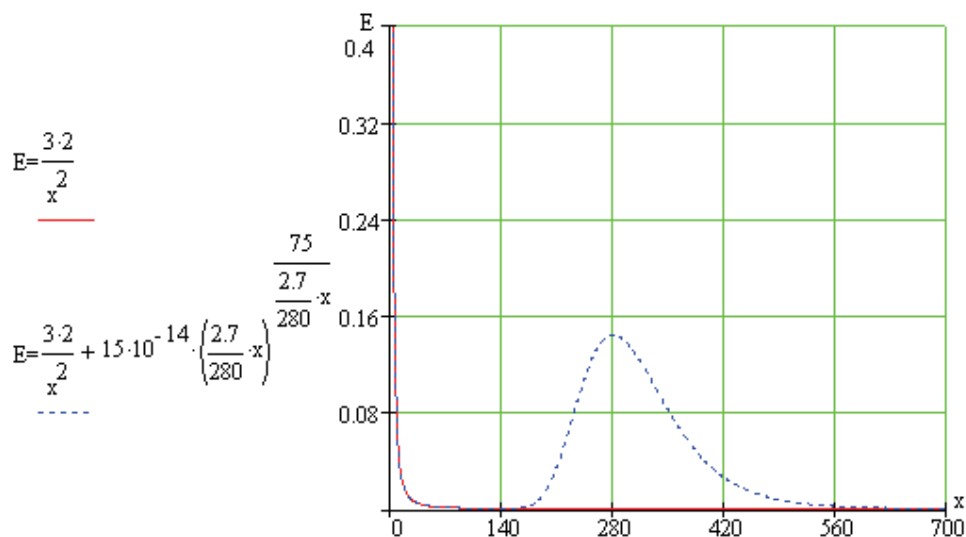Inny wykładnik potęgi w mianowniku zamiast 2
Другой показатель степени в знаменателе вместо 2
Another exponent in the denominator instead of 2

The changes to Newton's formula presented in here are intended to show why celestial bodies behave differently than Newton predicted. If the bodies interacted with each other as described by Newton, the orbital motion of the two bodies would follow elliptical trajectories and there would be no perihelion motion. Whereas, there is a phenomenon in the form of the perihelion of orbits of motion of celestial bodies, for example, the motion of Mercury perihelion. Currently, it is assumed that one of the reasons for the motion of perihelion of celestial bodies is the relativistic effect. In this way, one can try to explain the perihelion motion of the celestial body's orbit when it takes place very slowly. But there are double stars for which the perihelion of their orbits travels at high speeds.

In the case of Mercury and other planets in the Solar System, the magnitude of perihelion motion is measured by no more than tens of arc seconds per century. But in the case of the components of the binary star PSR B1913+16 perihelion of their their orbits rotates at 4.2 angular degrees per year. Logical description of such a motion is possible by using, for example, an exponential function like $E=(A*B/x^2)*\exp(B/x)$.

However, the above-mentioned methods cannot explain the increase in the gravitational interaction mentioned in the "Introduction", an interaction which prevents the galaxies from moving away from the cluster. To explain this phenomenon, the physicist F. Zwicky proposed to use dark matter. But the course of this phenomenon can also be explained by the fact that the gravitational interaction changes differently than previously thought. The occurring gravitational acceleration can be described by the mathematical function presented in the figure below.

$$E = \frac{3 \cdot 2}{x^2}$$
—

$$E = \frac{3 \cdot 2}{x^2} + 15 \cdot 10^{-14} \cdot \left(\frac{2.7}{280} \cdot x\right)^{\frac{75}{\frac{2.7}{280} \cdot x}}$$
- - - -

Dodatkowy składnik we wzorze na grawitacyjne przyspieszenie
Дополнительный компонент в формуле гравитационного ускорения
An additional component in the formula for gravity acceleration

In this case, in addition to the formula according to Newton, there is an additional

component that changes the gravitational acceleration. In the presented diagram, the increase in the gravitational impact begins at a distance of approx. 150 distance units away and reaches its maximum at x=280 distance units. Mathematical functions with real (and not made up ad hoc) parameters should be elaborated on the basis of the actual results obtained from astronomical observations.

Dark matter near us and in the universe
1) Change in mass due to magnetisation
Physicist Zwicky's proposal to explain the unusual behaviour of galaxies in the cluster region by the gravitational interaction of dark matter is justified. In fact, this behaviour can be explained in another way, namely, the not yet detected change in the gravitational effect of the cluster with a change in the distance from its centre, which can be described mathematically. But there is significant experimental evidence that dark matter does exist in the universe. While introducing the concept of dark matter into nature science is in a way a return to the ether theory, which physicists do not like today, but no one is contradicting the facts - there is experimental evidence for the existence of dark matter. This can easily be verified in a research laboratory and even at home. Since dark matter exists throughout the entire universe, hence it also exists in and around every object.

Here is a brief description of the experiment from the article "Magnetisation - its effect on mass",*1) which reveals the existence of dark matter:

"*Using a modest home opportunities, the author conducted a trial whose aim was to check whether in the primitive household conditions he can determine the change in mass of matter under the influence of magnetizing. In the experiment, was used a balance scale with a set of weights from 1 gram to 20 and weights from 10 milligrams to 500 milligrams. In the experiment, was used neodymium magnet with a diameter of 18 mm and a thickness of 5 mm, which was used as the source of the magnetic field. Objects that during the experiment were magnetized, was glued set of three steel flat washers - that had a form of a ring of a thickness of 6 mm and diameters: internal and external, respectively, 11 mm and 21 mm - and a steel ball from bearing with a diameter of 18.8 mm.*

The experiment was carried out as follows: First, were weighed separately: magnet, ring and ball - they had respectively the weight of: 9.38 g, 11.15 g, 27.75 g. By adding up the total weight of these items was 9.38 g + 11.15 g 27.75 g = 48.28 grams. This total weight was not possible to weigh using weights that were available. For this reason additionally was used (as a weight) 26,08 grams shingle.
Next, the magnet, ring and the ball were joined together into one lump and immediately after union weighed together - the weight was equal to 48.27 grams. (The noticeable difference in weight can be explained by the measurement error.) However, before this weight had been read (after summing the weights), for about 15 - 20 minutes the scales remained calm and its observation was carried on. Then during farther observation the pan with a magnetized lump of steel increasingly kept dropping down. For its balancing there were put whole matchsticks and their parts on the pan with weights.

When it became clear that there is a weight increase of the lump, observation was discontinued. Then were weighed matches that during the experiment were put on the balance scale - their weight was 0.38 grams - and summed values of the other weights that were on the scales - the total was 48.27 grams.
In this way it had been established that the weight of the lump during magnetization (and thus also its mass) increased by a value of approximately 0.38 grams. So during the magnetization just such amount of subtle matter infiltrated additionally to the atomic matter of the ring and ball, which total weight before magnetization was: 11.15 g + 27.75 g = 38.90 grams.

The value of the weight of the ring and the ball during the magnetization in the experiment was (0.38*10 %/38.9) about 1%."

One of the readers of the article made a similar experiment and presented it as follows:
"It's an interesting hypothesis with the increase in mass. So I decided to weigh two neodymium magnets separately, then joined them and weigh again. I have weighed each of the magnets separately several times. I noted the discrepancies. Then I did the same with the joined magnets. And indeed, a tendency for the weight increase by one percent of the joined magnets was observed. But I'd like to note that I do not attach too much importance to this, because I did not prepare the experiment accurately enough to draw too far-reaching conclusions."
The mechanism of the increase in mass of matter during magnetisation is presented in detail in the article "Magnetic field? ...But it's very simple!".*2

The experiment of the reader shows that the magnetic effect on changing the structure of matter from two joined magnets is about 1% greater than the effect of the two magnets added together when taken individually. This magnetic influence concentrates more dark matter in and around the magnet, resulting in an increase in mass.
The taking place in the experiment summing with a 1% excess of the mass of joined magnets suggests that there may be a similar summation result in the case of ordinary objects. This means that the weight of the two objects when they are weighed together is slightly greater than the sum of the weights of the objects when they are weighed separately. This excess weight, defined here by the word "slightly", is probably less than 1%. An exact laboratory balance is essential to investigate this fact.
A balance with pans is not suitable for such weighing. But by means of a highly sensitive laboratory electronic scale, it could be shown that, for example, 100 pcs of fieldstones, when weighed them all together, have a greater weight than the sum of the weights of these stones when weighing each of them separately.
You can guess why they carry more weight when they are together. It can be repeated here that they weigh more because their weight is measured together with the air surrounding them and the surrounding and contained within and around them the subtle dark matter - formerly known as ether. For example, air and ether are more concentrated when there are more stones and when they stack together.
But here's a note... When estimating the actual increase in mass of the stones that make up the pile, one should take into account the contribution to the increase in mass due to yet another phenomenon. This phenomenon in physics is now known as the mass defect.

2) Change in mass after deforming impact

Soviet astrophysicist Nikolai Kozyrev writes in an article at
http://www.univer.omsk.su/omsk/Sci/Kozyrev/mass.win.htm :

"Already the first experiments showed that when bodies collide with irreversible deformation, their weight actually decreases. On an analytical balance with a scale value of 1.4 mg, bodies weighing up to 200 g were weighed - this is the limit of normal operation of these balances. For the control and weighing of heavy bodies up to 1 kg, a first-class technical scale with a scale value of 10 mg was also used. It turned out in these experiments that the loss of mass does not disappear immediately after the collision is completed, but remains, gradually decreasing over the course of 15-20 minutes. This extremely important circumstance greatly simplifies the experiments: there is enough time for careful weighing, and the gradual restoration of weight can be observed.

In subsequent experiments, a rigid elastic body (ball bearing) was weighed after it collided with an inelastic plate (lead), and vice versa, the lead was weighed after collision with a rigid base (stone floor). Then experiments were carried out to weigh the deformable box after multiple sharp shocks with the rigid bodies inside it, and vice versa, the lead pellet was weighed after shaking it in the rigid box. The weight of the box was measured with everything in it, as well as separately: the weight of the box and the weight of its contents. These experiments have shown that only the body in which the process of irreversible deformation takes place becomes lighter."

In the experiments carried out by N. Kozyrev and described in the article, there was a deformation of the body and a temporary decrease in the body weight.The amount of atomic matter in the deformed bodies remained the same. Because after 15-20 minutes, the body weight returned to its previous state. What happens when lead deforms can be called a squeezing out of some matter - this squeezed matter is a kind of dark matter. You can read more about the details concerning this type of matter in Art. "Magnetisation - its effect on mass". * 1) In this article, dark matter particles are called protoelectrons, and dark matter itself is called "protoelectron medium". Protoelectrons are particles whose tightly condensed clusters are known as electrons. During lead deformation, a small part of the protoelectron medium is as if squeezed out and thrown out of the lead volume. The result of this process is a temporary reduction in lead weight. Because almost shortly after the deformation, the protoelectron medium returns to the region of the atomic matter of lead. Kozyrev also writes about the fact that a temporary reduction in mass took place after the copper foil was crushed.

3) Change in mass due to heating

N. Kozyrev in the article did not reveal any details related to the experiment. He only mentioned that heating the body reduces its weight. After the body cools down, its mass returns to its previous state. This phenomenon also reveals the existence of dark matter that is present in the volume of the body and all around it. The increase in body temperature is related to the fact that the atoms that make up the stable structure of the body vibrate more intensely. These vibrations, as the amplitude increases, contribute to the ejection of a very large amount of dark matter components outside the atomic structure, i.e. the protoelectron medium. There is no positive electrostatic charge when the body is heated. Because in the heated body, in its structure, there is a constant balance of

interaction between nucleons and protoelectrons. The equilibrium of interaction between nucleons and protoelectrons also exists during the permanent deformation of the lead nugget, but the deformation, unlike heating, takes place in a short time.

Summary

In the mentioned experiments, the mass was changing. The results of these experiments confirm that the existence of dark matter, i.e. the protoelectron medium, is a fact. Dark matter, like air, is invisible, but the phenomena presented show the effects of its motion from the studied objects to the environment and back. The experiments showed a change in weight during weighing. But dark matter manifests itself in many ways. It manifests itself in light phenomena because it is a medium in which light waves propagate. It manifests itself in electrical, electrostatic, magnetic and other phenomena.
Perhaps the dissemination of knowledge about these phenomena and the participation of dark matter in them will contribute to changing human thinking about the structure of matter and the surrounding reality.

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*1) The excerpt comes from the article "Magnesization - its effect on mass" - in English http://pinopa.narod.ru/Magnes_Masa_uk.pdf (in Polish http://pinopa.narod.ru/35_C4_Magnes_Masa.pdf; https://www.salon24.pl/u/swobodna-energia/557805; in Russian http://pinopa.narod.ru/35_C4_Magnit_Massa.pdf).
*2) The article "Magnetic field? ...It's very simple!" is available at http://pinopa.narod.ru/06_C2_Magnet_pole_pl.pdf (in Russian, see http://pinopa.narod.ru/06_C2_Magnet_pole_ru.pdf).

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Bogdan Szenkaryk "Pinopa"
Poland, Legnica, 2020.12.09.