The genesis of the fundamental principle of matter

(Translated from Polish into English by Andrzej Lechowski)

Abstract: The article presents fundamental principle of matter. It manifests itself in all physical phenomena. But the easiest way it can be seen are gravitational interactions. Therefore, the fundamental principle of matter is presented in the article as derived from gravitational interactions.

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It won't be an exaggeration if one says that the fundamental principle of matter, was discovered by Galileo. Because, in fact, he discovered that the macroscopic bodies accelerate each other, and the acceleration that the given body gives to another body depends only on accelerating abilities of the given body. He discovered this principle, but didn't recognize its fundamental importance. He recognized its gravitational importance only, or this importance, which exists in the macro-scale and at long distances, and which is now commonly known as the law of free fall of bodies in a gravitational field.

Obviously, the fundamental principle of the matter as the foregoing, does not come from Galileo. Galileo discovered that in the Earth's gravitational field bodies, which are dropped from a certain height, regardless of their size, get the same acceleration.

Galileo carried out his measurements in relation to the Earth's surface. And the results he obtained, that is, that accelerations were approximately equal, owed to the fact that one of the interacting bodies, or the Earth, was disproportionately large in relation to the objects that were dropped from a certain height.

The bodies dropped from a height also gave the acceleration to the Earth - you can guess that Galileo was aware of this. In case when in different experiments Galileo was using for example, two bodies and one of which was ten times heavier than the other, then the acceleration, which got the Earth in these two different experiments, was in one experiment also ten times greater than that in the second one. But, because of the huge difference between the mass of the Earth and the mass of bodies dropped from a height, the value of acceleration, that got the Earth in each experiment, but above all, the difference between values of accelerations in two various experiments, was so small that during the measurements it was not noticeable.

During the experiments, that were carried out by Galileo, the Earth, because of its enormous mass, plays (in a sense) a dual role. Because, firstly, it gave a great acceleration to bodies that were dropped from a height, and secondly, remained in the space in such a state as if it was immobile.

A similar experiment can be carried out on models of bodies (using for this purpose a computer). When models of bodies interact and accelerate each other in accordance with the fundamental principle of matter, then arises a similar effect when one of the bodies in space, where the motion is performed, is motionless relative to the space. Just then, there can clearly be seen that the body, for example in the form of a single atom, gives the same acceleration to the second body, regardless of what size is the second body, and therefore, irrespective of whether it is a single atom, or a planet.

When it comes to gravitational impact, it is worth to bear in mind various sizes of the interacting bodies, especially ones so different from each other, like atom and planet. You should also bear in mind the fact that the interaction takes place at various distances. This is extremely important for this reason

that the principle of interaction between the components in matter - celestial bodies in the universe, and atoms in chemical molecules, crystals and other structures - doesn't change due to the fact that the bodies have a different structure and a different size, and doesn't change because of this, that there are changes in the distance between the objects. Thus, the action, which is known as the gravitational force between bodies in the macro-scale, is essentially the same action that exists between the components of matter in the nano-scale. A significant difference, which occurs in the macro and nano-scale, is the difference in value (force) of the impact depending on the distance and the difference in mathematical functions that are suitable to describe the action with such different scales and distances. This difference is clearly visible, and this is mainly due to the fact that now there exists in physics a variety of forces of action, which physicists have not yet managed to logically associate with each other. *)

On this basis, that the general nature of the interactions between the components of matter and the very physical nature of this interaction remains invariable at such different conditions, it has been named the fundamental interaction between components of matter.

The fundamental principle of matter, except that describes the nature of a mutual acceleration of bodies, also shows the way in which it takes place. More specifically, we can say that it presents a real mechanism of action that you can imagine and calculate its parameters. The fundamental principle of matter says about occurrence of accelerations, and its description is based on the use of mathematical ideas that someone anonymous invented a long time ago and which are commonly known. These are the ideas of the potential of the field and the field intensity. Mathematical functions that describe changes in these parameters depending on the distance from the central point of the field, are linked in such a way that the function of the field intensity is a derivative of the field potential. At the same time the function of the fundamental (gravitational) intensity of the field is identical to the mathematical function, according to which the acceleration of other objects in the field changes.

With this description of the action, the cause of the impact, and the mechanism of the action can be related to the parameters that are described in the function of the field potential. At the same time, at the outset, there should be skipped the idea saying that the actions are transmitted through the intermediate particles or waves and that transfer of actions takes place (lasts) in time. This kind of idea in this context (as presented here) is absurd. Because the effect of the fundamental (or gravitational) action of the field appears without any delay. Thus, for example, when the body B is moved in the body A (even at small distance), and will be at the new distance from the body A, then with this new distance a new acceleration suitable for the distance between the bodies will occur without delay. And it will be so, even then if the distance between the bodies A and B will be very large. The described herein principle of immediate action doesn't depend in any way either on the size of the interacting bodies (i.e., it equally functions to planets, and to atoms), or the distance between them (i.e., it equally functions at distances calculated both in millions km, and in angstroms).

The fundamental principle of matter also says about how you can interpret the physical essence of matter - in sense suggests, what matter is. About the same properties of matter, the existence of which suggests FPM, also say facts from physical experiments. Namely, these facts say that what we see when we look at a variety of items, is associated with our abilities of perception. We see objects in the form of a compact matter, they are most often opaque. But the same matter is perceived quite differently, as observed through an electron microscope. Then matter is seen as a lattice, components of which are atoms. It consists of the areas of more dense matter, in the vicinity of the centre of each atom, and large areas between these centres, which seem to be empty.

Taking into account just such images of matter, you can believe that it consists of centrally symmetric potential fields. When interacting with each other over short distances, these fields form compact structures in the form of atoms, chemical molecules, crystals, up to the great celestial bodies in the form of stars and planets. In case of any of such structure, although some of them are very large, and significant importance has also action over large distances, the essential role play links between the structural components, which are being realized at small distances. On the other hand, thanks to the

interactions that occur at much larger distances, there arises another type of structures - there are formed planetary systems and galaxies.

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*) There should be noted that modern physics requires unification of interactions. But it should be the unification, which would clarify the relationship between the known (created) long since forces and fundamental interactions in matter, and would present their mechanism of formation from the fundamental interactions.

On the occasion of Mother's Day and the 95th birthday, with heartfelt wishes and thanks, I dedicate this article to my mom.

Bogdan Szenkaryk "Pinopa"

Poland, Legnica, 2012.05.26.

Some of the comments on the Pinopa's blog - additional important information

http://www.pinopa.republika.pl/Geneza_FZM_Kom.html