Timeless interaction of matter

The timeless interaction of matter used to be the basis of classical physics. This basis was valid in the science of matter until the appearance of new theories in it: both the theory of relativity and quantum mechanics. This timeless interaction occurs as follows. Individual particles of matter and their complex structures give other particles and structures acceleration, which in no way depends on the flow of time. The very process of giving acceleration and the flow of time are concepts invented by man to describe phenomena logically. (You can read more about this in the article "Fiction in Life and Science - Unification of Physical Interactions" at http://pinopa.narod.ru/Fikcja_w_nauce_uk.pdf). The course of any process is related to time. But this connection is of the kind that it is time that depends on the process running, not the other way around. Various processes can and have been used to measure time. One of them was a process involving leaking sand in an hourglass. Man, as a practical being, used one of the processes to determine the duration of one second (the current definition of 1 s has been in effect since 1967).

The course of any process that is perceived in matter is determined by the course of mutual accelerations that the constituent particles of matter give to each other. The particles give each other accelerations, and this causes the particles to change their positions relative to each other. The magnitude of the accelerations imparted to each other is not time dependent, but it is dependent on the distance between the particles. This may seem like a paradox, but it is not. For more information about the interaction of matter particles, see the article "The Constructive Field Theory - briefly and step by step" at http://pinopa.narod.ru/KTP_uk.pdf.

It is known that accelerations decrease as the distance between particles increases. Because of this distance dependence of acceleration, particles at different distances from a given particle are accelerated differently by that particle. This results in the particles at different distances moving at different speeds. These particles moving at different speeds also accelerate other particles. And this creates the basis for wave motion in the particle system. Thus, the "discovery" is born in the mind of man that energy is transferred from one object to another object due to wave interaction and that such energy transfer continues over time. This is a truth. But this truth should not obscure the fact that the beginning of the wave process, which changes in time, is the out-of-time mutual acceleration of the particles of matter.

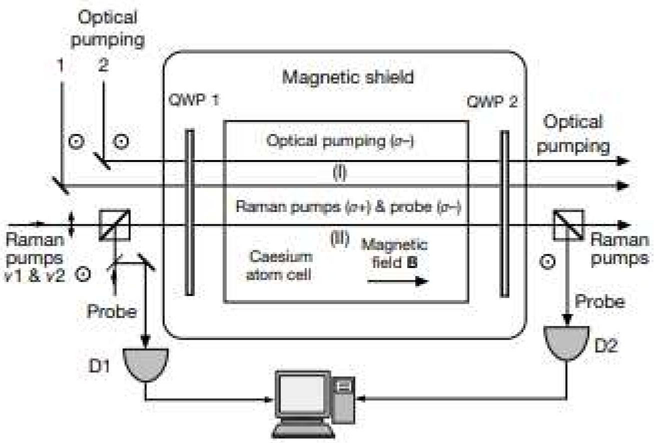
Physicists and editors of physics journals are interested in discoveries in physics. Many of them believe that on June 4, 2000, a real breakthrough was made in physics. That was when Professor Lijun Wang of the NEC research institute in Princeton reported that his research group had achieved a sensational result. They discovered that light pulses can travel at speeds up to 310 times faster than the standard speed of light in a vacuum, which is about 300 000 km / s. This was achieved in an experiment that involved sending a pulse of light through a chamber filled with specially prepared caesium gas. The moment of appearance of the light pulse from a distant source was recorded at the entrance to the chamber with caesium gas and at the exit of the pulse from the chamber. This procedure makes it possible to determine the speed at which light travels through the caesium gas chamber. Of course, in this experiment the moment of sending the pulse from the light source was also recorded.

During the many experiments performed, an unusual situation came to light. It was unusual in that the pulse recorder at the exit of the chamber received the incoming pulse earlier than it had time to reach the recorder located at the entrance to the chamber. This situation is now interpreted by many physicists as time travel of the light pulse. However, for many physicists their thinking system (shaped by both theories of relativity and quantum mechanics) tells them that it is a journey to the past. Although, in fact, the course of the process in the experiment clearly suggests that it is a journey into the future, that is, into times yet to come. Because the impulse at the exit from the chamber, which appeared earlier, i.e., as the first one, is a prediction that a similar impulse in terms of structure will appear only in a moment, i.e., after some time has passed. Thus, this is a proof that today's physicists' explanations of the experimental results obtained by Lijun Wang with his research group are illogical.

And how should this situation be interpreted in reality? In order to find out how this matter looks like from a scientific, logical point of view, you have to make a trip back in time in your mind and go back to the time when the classical interpretation of interactions in matter was used in physics. According to this interpretation, interactions in matter are related to the mutual accelerations of the components of matter. Particles of matter impart accelerations to each other in a direct way, that is, without the participation of any intermediate particles. The magnitude of this acceleration depends on the distance between the particles and this magnitude is described mathematically by the field strength function. As mentioned earlier, this way of acceleration is presented in the article "The Constructive Field Theory - briefly and step by step" at http://pinopa.narod.ru/KTP_uk.pdf. The out-of-time nature of gravitational interaction is presented in this article.

In fact, there is no time travel of any kind in the phenomenon discovered by L. Wang's team - there is no time travel either one way or the other. Because time is a relative concept. You can read about the essence of the concept of time and other concepts in the articles "Fiction in Life and Science - Unification of Physical Interactions" and "The Physical Nature of Time"
(at http://pinopa.narod.ru/Fikcja_w_nauce_uk.pdf and at http://pinopa.narod.ru/12_Nat_wremeni.pdf).

The timeless mutual acceleration of particles is difficult to discover directly in physical experiment. However, a team of research physicists led by Prof. Lijun Wang succeeded in discovering this timeless particle acceleration, although they themselves do not know it yet.*) These physicists used a chamber filled with caesium gas in their experiments. The caesium gas was prepared in a special way in the chamber. There was very low pressure and a temperature of 30°C. At this temperature, caesium would normally exist as a liquid, because caesium melts at 28.44 °C, but the high dilution of the gas makes it impossible to go into the liquid phase. By using special conditions, the cesium atoms in the chamber were oriented in a certain way and were almost immobile. How these special conditions were created is schematically shown in the figure below (taken from an article by the authors of the discovery titled "Gain-assisted superluminal light propagation" at https://www.researchgate.net/publication/12401462).



The caesium gas in the chamber was under a very complex influence - there were two lasers, Raman amplification, two half-wave plates changing the polarization of light, a constant magnetic field, and the glass walls of the chamber were covered with a layer of paraffin. On this basis, one can guess what state of matter prevailed in the chamber and its immediate vicinity. There was there a reduced mobility of atoms and their minimized influence on the passing light impulse. And such reduced mobility of atoms means the existence of reduced thermal influence on the sensitivity of the sensors, which were used to receive the light signals. So that there was a strongly reduced interference there for the light pulse coming directly from the source. And due to this, almost immediately, that is, almost in an off-time manner, the light pulse from the source reached the sensor located behind the chamber exit. It reached there earlier, before the light pulse had time to reach the chamber.

The authors of the discovery at http://www.nec.co.jp/press/en/0007/images/1901.pdf provide a "detailed statement" and in it they write:
"2) ... In our experiment, a smooth pulse of light with a duration of about 3 microseconds propagates

through a specially prepared cesium atomic chamber 6 cm long. It takes 0.2 nanoseconds for a light pulse to travel a 6 cm long path in a vacuum. In our experiment, we measured that a light pulse passing through a specially prepared atomic chamber appears 62 nanoseconds earlier than if it were passing through the same thickness in a vacuum. In other words, the net effect can be represented as follows: the time it takes for a pulse of light to pass through a specially prepared atomic medium is negative. This negative delay, or advance of the pulse, is 310 times greater than the 'time of flight in vacuum' (the time it takes for light to travel a distance of 6 cm in a vacuum)."

The authors' interpretation, presented at the end of this text, shows that they actually completely misunderstand what they have discovered.

After reading the text excerpt (before the authors' erroneous opinion), the question arises: where did the time measurement of 62 nanoseconds come from? According to the article "Gain-assisted superluminal light propagation" at https://www.researchgate.net/publication/12401462, one can guess that this is the time it takes for the light pulse from the source to reach the front wall of the caesium gas chamber. In such a time in air, the light pulse travels a distance of 18.04 m (0.01804 km), because the speed of light under these conditions is 291,000 km/s. And that is how long it takes for the light pulse to travel this distance, because 0.01804/291000=62*10^-9s.

Lijun Wang and colleagues in their physical experiments have discovered what they themselves do not yet know. It can be expected that one day they will find out, however, and make many more interesting discoveries in this field.

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*) The authors of the discovery (L. J. Wang, A. Kuzmich and Arthur Dogariu) misinterpret the causes of the phenomenon they discovered. Their interpretation is very complex, and their main goal is to miss by a wide margin the fundamental errors of both relativity theory and quantum mechanics. On the basis of this article and after reading the other complementary articles indicated here, these authors can see their own errors and correct them. For although I. Newton inaccurately represented the mutual accelerations (interactions) of matter, he did not introduce as many absurdities into physics as the developers of physical theories of the 20th century introduced into physics.

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