

# Confused by Einstein

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## Abstract

The confusing situation in modern physics is discussed. New interpretations to known results are presented. These interpretations are based on a recognition of the ambiguity in the concept direction of light. The paradoxes and absurdities in modern physics can thereby be avoided. The cost for this simplification is the necessity of an ether. However, this ether must have remarkable properties.

## Background

Theoretical physics of today is full of logical and mathematical errors. The more than 100 years old theories of relativity and of quanta of light were based on old experiments. During this long time theoretical physics has developed very slowly. However, during the same time technology – or applied physics – has developed very fast. The advanced technology of today is very successful but, on a deeper level, not very well understood.

Advanced technology of today allows us to detect a very small slowing down of a Pioneer satellite outside our planetary system. However, modern physics does not have a clear explanation to this effect.

Advanced technology in atomic clocks means that we can detect very small decreases in the frequencies produced by these clocks. These small effects are related to speed and altitude in such clocks placed in satellites in the global positioning system (GPS). These effects cannot be explained by traditional physics. The mechanism inside these clocks is not well known. Therefore Einstein has invented the concept dilation of time to explain this. He said that time is a concept that can change its own speed of flow. The propagation of time itself depends on the situation, according to Einstein. Such changes, in the speed of time, have absurd consequences. One apparent and important consequence is that twins can become of different ages. This is called the twin paradox.

Modern gravimeters have high sensitivity and can detect very small changes in the combined force of gravity from our own planet, our sun and our moon. See [1]. Such effects have been observed when our moon is in front of our sun during an eclipse. Gravimeters have detected vertical effect. However, in horizontal direction the effect is also detected by means of motions in a high radio mast. These effects cannot be explained by modern theories in physics.

We can conclude that the Pioneer anomaly and gravitational changes during an eclipse cannot be explained by modern physics. The explanation, in modern physics, to the behavior of atomic clocks has absurd consequences. This means that we have at least three important problems in modern physics. This, so called modern physics, is based on three important experiences: stellar aberration, Michelson and Morley's tests and photoelectric effect. All three are probably misunderstood.

## Misunderstood stellar aberration

Almost 300 years ago it was discovered that the apparent direction to a fix star was changed by a small amount due to our planet's speed in its orbit around our sun. See [2]. The observed effect is not caused by our planet's position, as first was assumed. This effect is called stellar aberration. The apparent motion of a light particle depends on the state of motion of the observer. The effect represents the difference in apparent light direction between observations from our planet and observations from our sun. This explanation was based on earlier assumptions that light consisted of particles. However, this explanation must be valid for light described as waves as well. The effect of observer motion, in relation to a moving phenomenon, must be the same for a wave phenomenon as for a particle phenomenon. In both cases the effect must represent the difference between observations from our sun and observations from our planet.

Unfortunately this explanation was abolished when light was described by waves, instead of by particles. It was stated that light waves must move according to a vector addition of wave motion and ether motion. This declaration is true for the real motion of light. However, this real motion is not observable when light is detected in telescopes and in interferometers. In these instruments we detect an apparent direction represented by the orientations of the wave fronts. The observable direction is in a right angle to the wave fronts. Therefore, this kind of coherent detection depends on wave motion and only *one* component in the ether wind. This component is ether motion parallel to wave motion. These instruments are therefore blind to ether motion inside the plane of the wave fronts. In other words: Ether wind in transverse direction is without relevance in these kinds of instruments. We can therefore conclude that the concept direction of light is an ambiguous concept. We have real and apparent motions of light. Real motion can only be detected in light focused into a narrow beam. An ether wind transverse to light can change the direction of this beam but *cannot change the orientations of wave fronts inside this beam*. Apparent direction of light is defined by these wave fronts independent of ether motions transverse to wave motion. We can see these important facts by regarding that a description of light motion *first* must be transformed into the frame of the ether and *after* such a transformation light speed must be constant and equal to  $c$ .

The confusion between real and apparent direction of light has not been observed and we have not regarded this ambiguity. This mistake has caused an unjustified denial of the entrained ether. In fact stellar aberration cannot tell us anything about the ether wind, since transverse ether wind is without relevance in telescopes. Stellar aberration indicates only *changes* in the motion of the *observer*. This misconception about stellar aberration was the first, and the most important, error in the history of modern physics.

## Misunderstood Michelson and Morley tests

The separations between atoms in a crystal are controlled to very accurate values. This means that something is connecting the atoms to each other. That something must be the ether, since the ether is the only thing that exists between the atoms. The separations must therefore be defined by some effects that the atoms produce in the ether. Therefore, the atoms communicate their positions to each other by means of the ether. Information is therefore flowing between the atoms in the form of changes in the ether. This information is flowing with light speed in relation to the ether in two opposite directions simultaneously.

In Michelson's experiments light, as changes in the ether, move in two opposite directions between mirrors. See [3]. Michelson sent information in two opposite directions sequentially with light speed in relation to the ether. The information flow between mirrors is sequential but the flow between atoms is simultaneous. However, the effect caused by the equipment's motion in relation to the ether (ether wind) is the same. This means that the small decrease in 2-way speed of light is compensated by the same effect in the separation between atoms and therefore also in the length of the equipment. Michelson detected therefore constant phase, or number of waves. The effect is thereby explained without dilation of time. This is in agreement to earlier statements of no effect of transverse ether wind and no effect in the transverse arm in Michelson's equipment. Stokes' reduction of Michelson's prediction by a factor of  $\frac{1}{2}$  is not needed either. We can therefore conclude that the famous tests by Michelson and Morley are of no use in relation to the ether wind.

We should not be surprised by this, so called zero result, since constant phase is assumed in the definition of the standard meter. Therefore, we can conclude that the length of one meter contracts just as much as Michelson's equipment.

### **Misunderstood existence of an ether**

Misunderstood stellar aberration caused a denial of the entrained ether and misunderstood Michelson and Morley experiments caused a denial of the autonomous ether. These two gigantic mistakes made it possible for Einstein to introduce an ether less theory. The ether was denied but the waves were saved. We still have waves but we no longer have a waver.

A fourth model for the ether has been suggested by this author. See [4]. The idea is that ether properties can be entrained although the ether in itself is not entrained. The entrained properties are ether wind and gravity produced by this ether wind.

After abolishing the ether Einstein was forced to use the observer as the reference for the speed of light. This decision had the remarkable consequence that time and space changed their scale factors due to speed and that twins could become of different ages.

### **Misunderstood pushing gravity**

The theory of pushing gravity is a 300 years old idea. The theory is based on a flow of ether particles moving in all directions with a very high speed. This flow is assumed to be reduced when passing through a massive body. The number of particles leaving the body is therefore lower than the number of approaching particles. The dominating flow of approaching particles can therefore create a force in direction towards that body and cause gravity. The produced force is therefore constant in a point that is stationary in relation to the body producing gravity. Constant gravity does not move and produces no aberration. Aberration is an effect in *moving* light that does not exist in *stationary* gravity. However, if we produce a change in gravity, this change will propagate with the speed of ether particles. Aberration is produced only in the change, just like in light. Light is changes in the ether.

The lack of aberration in gravity has been regarded in error to demonstrate an enormously high speed of ether particles. This mistake regarding aberration in gravity has caused a wrong denial of pushing gravity.

## Misunderstood anomalies in gravity

Newton's theory of gravity predicts the effect of gravity from two bodies always to be exactly a vector sum of the two individual effects. The theory of pushing gravity predicts that the total effect is reduced by a very small amount when the two bodies are in line with each other in relation to where gravity is measured. It is therefore of interest to study if such a small effect can be observed in gravity from our sun and moon together, when the Sun is obscured by the Moon.

Present technology allows detection of changes in vertical gravity as small as 1 part in 1,000,000,000 of the value on the Earth. An effect just above that value was detected in China in 1997. See [1]. However, this result appears to be almost ignored by scientists since the form of the registration did not match expectations. Instead of one indication during the eclipse there were indications only in the beginning and in the end of the eclipse. These indications also had 'wrong' sign. However, it is the opinion of this author that the indications are just what should be expected. The motivation is as follows. The eclipse affects not just the gravimeter mass but also parts of our planet of the size of our moon. The registration represents therefore the *difference* between these two effects. This difference can be positive as well as negative. The two effects are *not* equal since the gravimeter value can be regarded as a point value and the value on our planet is caused by averaging over a larger mass. Therefore we can conclude that four bodies are involved in this effect.

We can assume the effect during an eclipse to change with time in a way that looks like a normal distribution curve. During the eclipse such a curve has a bending downwards. However, in short intervals in the beginning and in the end the curve is bending upwards. This explains a change in sign since the difference between a point value and a mean over a region depends on if the bending is up or down.

Gravity changes have also been detected in horizontal motions in a high radio tower. See [5]. This registration demonstrates short indications in the beginning and in the end of the eclipse. These indications had opposite sign in relation to the effect during the large part of the eclipse. This is in agreement to expectations and confirms the idea that we must regard four bodies. Support for the theory of pushing gravity is therefore given by gravimeter as well as by radio tower indications. The size of the expected shielding effect due to pushing gravity is difficult to estimate. It is therefore very important that the available registrations represent the same *form* as we expect. These results are very important and more results during eclipses are of interest. Perhaps it is also possible to study the case when our planet is eclipsing our sun as seen from a GPS satellite.

## Misunderstood radiation from bound electrons

Light is invisible and we cannot do direct observations on light. We cannot see light in motion. However, charged particles, like electrons, interact with the ether and produce light when they are moving. Electrons can also be affected by light in a way that changes the motion of the electrons. Our information about light comes from observations on electrons when light is emitted or absorbed. We draw conclusions about light from observations on matter. The interchange of energy during emission and absorption must not be regarded as coming from light. The energy interchanged with electrons can instead be regarded as coming from the ether since we cannot see light in motion. We can therefore not confirm energy to exist in light in motion.

Light is a field and represents a *possible* force that is real first when a charged particle is moved into the field. Without this charge we have no force and the field must not necessarily contain energy. Forces exist during emission and absorption but not during transmission of light. Therefore, we can regard the force as emanating from the ether and *not* from the light. Light can be regarded as empty of energy. Light without energy means that bound electrons circulating around a kernel can generate line spectra without losing energy. Another important property is that we do not need quantization of energy in light. Light without energy can also explain why two light waves in opposite phase render *zero* radiation (destructive superposition). The assumption that light should transport energy is a guess without logical motivation.

### **Misunderstood photoelectric effect**

Electrons are bound to a kernel by orbiting around the kernel. The stability in the situation is due to a balance between two effects: An attracting force due to the electron's charge and an inertial force due to its mass. This balance can be disturbed by light since light can cause a force transverse to the motion of the electron. This means that *potential* energy in the electron is affected by light. This effect can be important if frequency in light is equal to (or to a multiple of) the orbiting frequency of the electron. Light described as waves can change the electron's potential energy. This change can cause an electron to leave its kernel. We have a continuous transfer of energy from *ether* to electron's potential energy. We have not a momentary transfer from *light* to kinetic energy in the electron. The wave model for light can explain photoelectric effect.

Einstein assumed light to be particles and stated that these light particles collided with electron particles and caused these electrons to escape their kernels. He stated that the particle model for light explained photoelectric effect. However, this idea is wrong since particles moving *towards* a crystal cannot by collision cause other particles to move *away* from the same crystal. This reasoning is in conflict with basic laws of mechanics. We can therefore conclude that the particle model for light cannot explain photoelectric effect. Einstein was wrong about this.

### **Misunderstood Compton effect**

When a fast electron is captured by an atomic kernel radiation of short wavelength, called X-rays, is produced. Sometimes this process can go in opposite direction. An X-ray wave packet can cause an electron to escape its kernel. This process is analogous to the process in the photoelectric effect. However, the escaped electron can be captured in another atom. The Compton effect can therefore be explained by an electron escaping one kernel and being captured by another kernel. The Compton effect is thereby explained by two processes.

Since escaping and capturing are processes in different atoms it is reasonable to assume that primary and secondary X-rays can have different frequencies and also different directions of motion. This means that the Compton effect can be united with the wave model for X-rays. These waves can be concentrated into packets but does not have to be particles.

## Misunderstood atomic clocks

Electrons circulating a kernel in an atomic clock are moving towards and along the ether wind's direction. The motion of the ether produces a very small acceleration and deceleration of the electron in the direction of the ether wind. See [6]. The electron's speed is therefore changed a small amount during each period of orbit. This small acceleration is equal to the ratio between ether wind and speed of light. The accelerating force along the ether wind causes additional speed transverse to the ether wind. The total electron speed is affected only in the direction transverse to the ether wind. This transverse component in electron speed is therefore different in the two opposite directions. This situation for electrons in atomic clocks is therefore equal to the situation for light in Michelson and Morley's tests. However, in atomic clocks this effect is *not* compensated as the case is in Michelson and Morley's tests. Therefore, atomic clocks demonstrate an effect very like the effect Michelson could not find.

We find that the electron's behavior in atomic clocks is not in perfect balance. The stability is slightly disturbed by the ether wind and this effect is of second order. Einstein could not explain this mechanism inside the atomic clocks. He therefore blamed the effect on the concept of time *itself*. A misunderstood physical effect was explained by metaphysics and called dilation of time.

## Misunderstood Pioneer anomaly

It was assumed in [7] that gravity is caused by a vertical ether wind equal to the speed of a satellite in a circular orbit at the same altitude as the ether wind. Radio signals to and from Pioneer satellites move towards and along this ether wind. Carrier frequency (in the range of 2 GHz) allows us to calculate the change in carrier frequency due to the assumption of vertical ether wind affecting the 2-way speed of light. When the satellite moves from 20 to 80 AU (astronomical units) we find a frequency change of 1.5 Hz. This effect is calculated in [8].

This means that the assumed decrease of the satellite speed can be an illusion. Instead the observation can be explained by an increase in the 2-way speed of light. The phenomenon can be misunderstood. Instead we may have a second order effect of the ether wind on the speed of light of the same kind as Michelson failed to detect. In the atomic clocks we found that the ether wind affected electrons in about the same way.

## Misunderstood light bending near our sun

The direction of light of most importance is the direction transverse to the wave fronts and independent of transverse ether wind. Wave motion, not total motion, is relevant and ether wind has effect in one dimension only, when we use a telescope. Changes in wave front orientations are therefore possible only if longitudinal ether wind is *different in different points* on the wave front. We must therefore make an integration of the gradient in longitudinal ether wind along the motion of light in order to find the bending of apparent direction of light. This is in agreement to the law in optics that states that light always takes the fastest (not shortest) way between two points.

When light is passing near our sun the speed of light is first increased by the ether wind and later decreased. Since the effect is strongest nearest to the Sun we get a bending, first away from the Sun, and later back to the same direction, but not to the same position. The change in position as

observed from our planet represents a very small angle. This angle is roughly estimated in [7] to be about 1 part in 100,000. It is also described in the same article how more accurate calculations can be done.

The derivation, in this article, of light behavior near our sun demonstrates two turns. This is in contrast to current explanation containing only one turn. This new derivation predicts about the same effect but is based on the *wave* model for light. All effects treated in this article are based on the wave model for light and the particle model for the ether. This means a continuous model and a discrete model. This can look like a conflict, but can perhaps be explained by assuming that the wavelength for light and for X-rays are long in relation to the mean distance between ether particles.

## Summery

It was a step forwards to describe light as waves instead of as particles. However, it was also a step backwards since it was not discovered that the concept direction of light is an ambiguous concept. Confusion -- regarding *real* motion as a vector sum of ether wind and wave velocity in contrast to *observable* motion where the ether wind has importance only in *one* dimension -- caused problems. This confusion caused wrong interpretations of important observations of stellar aberration and the experiments by Michelson and Morley. Einstein failed to discover these errors of physical nature. Instead he invented new ways of thinking and explaining away the problems. New kinds of thinking produced twins of different ages and explained gravity as the bending of nothing. Due to *many* failures created by Einstein it was difficult to see the first, and therefore most important, failure to discover the ambiguity in direction of light. Einstein produced much confusion and contributed thereby more to science fiction than to real science.

The most important direction of light is the *observable* direction, where ether wind inside the wave fronts is of no importance. Based on this idea and the idea of a vertical ether wind we can explain recent experiences with advanced modern equipments like Pioneer anomaly, behavior of atomic clocks, radiation from bound electrons, pushing gravity and destructive superposition in light. We can do that without dilating time, bending space and assuming quanta of light. Instead we have to introduce an ether with super fluid properties, transmitting light without energy and causing gravity by a vertical ether wind. We can also avoid the wave or particle confusion, since we regard light as waves and ether as particles. The use of one continuous and one discrete model may seem confusing. Perhaps we can solve this confusion by declaring that the wavelength of light and of X-rays is long in relation to the mean distance between ether particles.

## Conclusions

We should forget the confusion that was caused by the fact that Einstein himself was confused. Instead of very old and wrongly interpreted experiments we should base physics on empirical results later gained in advanced equipments.

The 1-way speed of light should be tested by two HeNe lasers connected over a couple of meters by fiber optics. The lasers should have high frequency stability and be mounted on a platform in order to change the direction of measurement. This idea has been suggested by Dr C C Su in Taiwan.

The shielding effect predicted by the theory of pushing gravity should be tested when our moon is obscuring our sun. We should also study if it is possible to test the shielding effect when our planet is obscuring our sun as observed from a GPS satellite.

## References

- [1] Qian-Shen Wang, "Precise Measurements of Gravity Variations during a Total Solar Eclipse", *Physical review D* 62 041101-1.
- [2] J. Bradley, *Phil. Trans. Roy. Soc.* **35**, 637 (1729)
- [3] Albert A. Michelson, Edward W. Morley, "On the Relative Motion of the Earth and the Luminiferous Ether". *American Journal of Science* **203**:333-345 (Nov 1887).
- [4] John-Erik Persson, "The Fourth Ether", Available at NPA database under address: [www.worldsci.org/pdf/abstracts/abstracts\\_7138.pdf](http://www.worldsci.org/pdf/abstracts/abstracts_7138.pdf)
- [5] Janos Rohan, <http://astrojan.zz.mu/laki.htm>
- [6] John-Erik Persson, "Light without Energy", Available at NPA database on address: [www.worldsci.org/pdf/abstracts/abstracts\\_7230.pdf](http://www.worldsci.org/pdf/abstracts/abstracts_7230.pdf)
- [7] John-Erik Persson, "The Falling Ether", *Proceedings of the Natural Philosophy Alliance 2013*, available at [www.worldnpa.org/site/](http://www.worldnpa.org/site/) Search on my name under 'Members'
- [8] John-Erik Persson, "Pioneer Anomaly and the Ether Wind", available at [www.worldnpa.org/site/](http://www.worldnpa.org/site/) Search on my name under 'Members'