

The Radial Ether Wind

John-Erik Persson

Budkavlevägen 5 Lgh 1302, Segeltorp, Sweden

john.erik.persson@gmail.com

Abstract

This article presents an alternative to the two theories of relativity, without absurd assumptions and without paradoxical effects. Support for this theory is given by the global positioning system, by the clocks in that system, the Pioneer anomaly and the gravitational effects during solar eclipses. This theory is based on an existing ether constituted by fast particles, moving in all directions.

Background

Maxwell described an ether by means of four equations and demonstrated that waves with electrical and magnetic properties could propagate in this ether. These equations have been important for science and technology. We can even see these equations on T-shirts. It is therefore remarkable that Einstein could fool us to believe that this ether does not even exist.

Maxwell's ether

Maxwell started with two first order differential equations, dependent on two variables, r and t , space and time. He found a general solution in the wave equation, with a constant speed c , as a relation between r and t . For finding a particular solution we add a constant of integration, as we can call $\mathbf{v}(r)$, independent of time t . The existence of a universal property, c , in the ether does not exclude the possibility of also a local property, $\mathbf{v}(r)$. An important fact. Now we need to do an integration, and find the behavior of light as $ct + \int \mathbf{v}(r) dt$. We need more information to find $\mathbf{v}(r)$. This information was not available to Maxwell. Since $v \ll c$ the missing information is not extremely important for technology, but very important for science. c is a relation between space and time and $\mathbf{v}(r)$ is independent of time. Although very different vectors, addition of vectors must be valid between these two variables.

Since Maxwell's theory was not complete, it was not well understood either. Therefore, the interpretations of his ideas seems to be influenced by experiences from sound waves and light particles.

The special theory of relativity, SRT

Einstein assumed that light moves with the same speed in relation to different observers in different states of motions. This absurd idea means that $\mathbf{v}(r)$ is assumed to always be zero. This mistake can probably be related to Occam's Razor. After many years of study Einstein tried to reintroduce the ether. Unfortunately, he failed to do this.

The global positioning system, GPS

The GPS system demands Sagnac correction, which is a correction due to the rotation of our planet. By disregarding this correction, we can see that the GPS system seems to measure velocities in relation to a not rotating frame with the velocity of the center of our planet. Therefore, we can find agreement to GPS by assuming that $\mathbf{v}(r)$ is a constant and equal to the velocity of the center of our planet. Unfortunately,

this idea is not in agreement to common sense. We cannot assume our planet to entrain the ether in the whole Universe.

In the GPS system satellites with transmitters are moving at a constant distance from our planet and the receivers are near the surface of our planet. This means small changes in radial direction to our planet. Therefore, it seems reasonable to assume that GPS could work if the function $\mathbf{v}(\mathbf{r})$ has spherical symmetry in relation to our planet. It may also be reasonable to assume that $\mathbf{v}(\mathbf{r})$ approaches zero for large values on r . Since our planet is in a free fall we can only see gravity and ether wind due to our own planet.

The demand for an ether wind $\mathbf{v}(\mathbf{r})$ with spherical symmetry in relation to our planet is interesting also from another point of view. Such an ether wind can explain gravity as well, due to the ether wind. To test this idea, we can assume $v^2(r)$ equal to the potential of gravity and a radial ether wind equal to the speed of a satellite in circular orbit. This means that a satellite will see a radial ether wind equal to the tangential ether wind due to speed.

Bound electrons in atomic clocks move with the speed w on the distance r from a kernel. Since the Coulomb force field moves with the speed c in relation to the ether we get a distortion of the field due to the ether wind v (or $\beta=v/c$). In front of the kernel the field is compressed to $r(1-\beta)$ and electron speed is reduced to $w(1-\beta)$. Behind the kernel we get $r(1+\beta)$ and $w(1+\beta)$. The electron's motion is accelerated and decelerated in the direction of \mathbf{v} and the electron's speed is changed in proportion to $(1\pm\beta)$ in transverse direction in relation to \mathbf{v} . This means that the time period is proportional to $1/(1-\beta)+1/(1+\beta)=2/(1-\beta^2)$ and the clock frequency is proportional to $(1-\beta^2)$. The satellite must communicate with Earth so we can assume stabilization in that direction. If the clocks are orthogonal to that direction gravity is inside the orbiting plane of the electrons. In tangential direction we assume no stabilization and satellite rotation will reduce the ether wind's effect by half. This value is found by taking the average of a squared cosine function. These assumptions give a good agreement to GPS experience. See [The Falling Ether](#) available at www.gsjournal.net under my name.

The observed Pioneer anomaly can be explained by a radial ether wind directed towards our sun. Two-way speed of light is assumed to be $(1-v^2/c^2)$. An increasing two-way light speed creates an illusion of a decreasing space station speed. Assuming 2 GHz carrier frequency and observations from 20 to 80 AU gives a frequency change of 1.5 Hz. This effect is calculated in [The Pioneer Anomaly and the Ether Wind](#) available at www.gsjournal.net under my name.

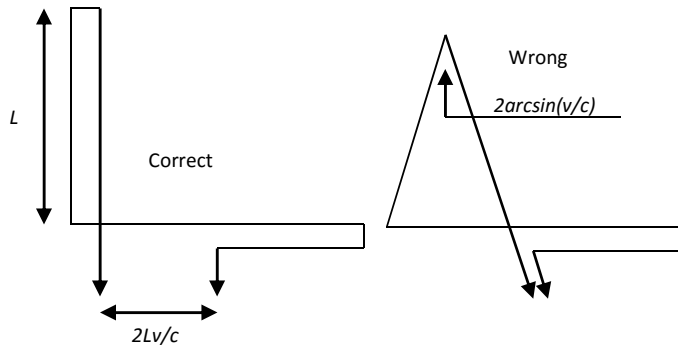
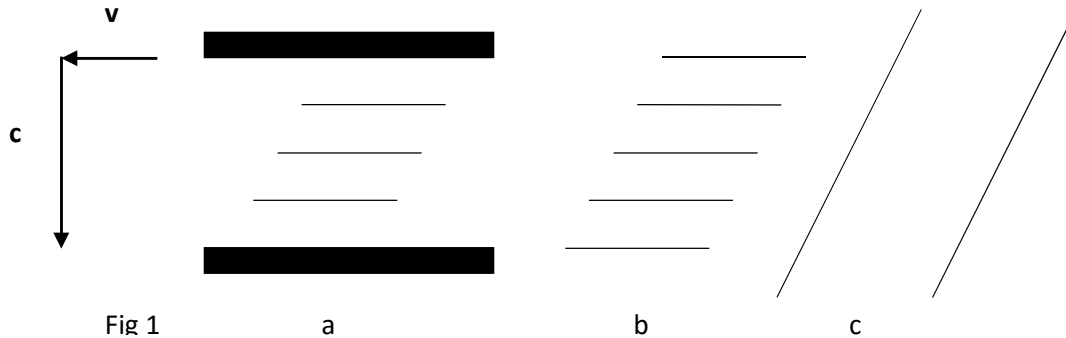
We will later see that light bending near our sun also can be explained by this model.

The behavior of light

A telescope uses a refractor or a reflector to transform a plane wave front into spherical form directed towards a point on a detector. The normal to the wave front is thereby detected. If the detector is moving, during the time between focusing and detection, the recorded direction is changed. Therefore, the telescope makes an error due to telescope motion, u , transverse to light direction. This error is the same for light waves as for light particles. An ether wind, v , blowing inside a wave front cannot change wave front orientation and is therefore not relevant in relation to stellar aberration. Orientation, or wave motion, \mathbf{c} , is detected (and dependent on \mathbf{u}) in a telescope, not total motion, $\mathbf{c}+\mathbf{v}$. See Fig 1b.

In resonators and in interferometers standing waves are defined by mirrors, implying boundary conditions on the light waves. A relative motion between ether and mirrors, that is falling inside the plane of the

mirrors, is without relevance for behavior of light, since boundary conditions are not changed. We can see this in another way, by the fact that each point on a wave front can be regarded as a center for a new wave front. Therefore, light always finds the fastest, not the shortest, way between two points. Therefore, we can conclude that light also finds the fastest way between two parallel surfaces. The wave vector c is therefore always orthogonal to the mirrors and standing waves always have wave fronts parallel to defining mirrors. Stokes was therefore wrong when he used a spherical wave front to derive an effect in the transverse arm in Michelson and Morley's tests, MMX. Einstein's time dilation is based on Stokes' mistake. See Fig 1a (stationary equipment) and Fig 2 regarding MMX (stationary ether).



Ether wind inside a wave front cannot bend the same wave front. However, bending can be done by a gradient in the longitudinal ether wind. The bending of light near our sun can be explained in this way. This effect is roughly estimated in The Falling Ether, (available at www.gsjournal.net under my name) to be in the order of 10^{-5} radians, in agreement to observations. In the same

Fig 2

article it is also described how a more precise estimation can be done. However, ether wind inside a wave front can change direction of a focused beam (without changing wave fronts inside it). This means that transverse ether wind can be detected by amplitude but not by phase. See Fig 1c.

In the longitudinal arm in MMX light is moving forth and back sequentially between mirrors. Atoms in a solid cannot control their separations by means of action at a distance. Separations are controlled by means of the ether. Information is sent simultaneously forth and back between atoms in relation to the ether. Therefore, two-way speed of light and separation between atoms in a crystal are both reduced by the ether wind in proportion to $(1-v^2/c^2)$. This means that in the longitudinal arm the effect is real but compensated. Michelson and Morley's method is useless in relation to the ether wind. Therefore, the meter standard defined by optics depends on the ether wind in the same way as the older standard.

Gravity

Describing gravity by a radial ether wind is done in The Falling Ether based on an assumption of fast and small particles moving in all directions. Gravity is a small disturbance in the spherical symmetry of the flow

due to attenuation inside matter. Fatio, Le Sage and van Flinders have described such ideas. However, the fact that the force of gravity has no aberration has caused confusion. We can solve that problem by regarding the fact that gravity and ether wind, $\mathbf{v}(\mathbf{r})$, are functions of \mathbf{r} only, and not of t , and therefore not revealing any speed.

We have assumed a satellite to experience the same ether wind in radial direction as in tangential direction caused by motion. We must therefore explain why the radial component causes the force of gravity, but the tangential component does not produce any force. A possible explanation can be the fact that the radial component is focused in direction towards our planet, but the tangential flow is not focused. It is also assumed that Earth in free motion explains why we see ether wind and gravity only from our own planet. Explaining gravity in this way means that we avoid the mysterious concept in GRT, bending of nothing.

The description of gravity, given here, is supported by experiments during solar eclipses. An effect in vertical direction has been reported from China. See [1]. A very sensitive gravimeter was used. Effect in horizontal direction has been observed in the motions of a very high radio mast. They were made in Hungary. See [2]. It is important to notice that these observations represent the difference between the effect on a test mass and the effect on a part of our planet that can be as large as our Moon. Therefore, we can expect effects before and after the eclipse that are of opposite sign in relation to the effect in the middle.

Conclusions

SRT and GRT are based on absurd assumptions and predict paradoxical effects. The alternative given here is based on accepted and well known concepts. According to this new interpretation stellar aberration and Michelson and Morley's tests are useless in relation to the ether wind. This new interpretation is supported by a first order effect in the GPS system, second order effects in the GPS clocks and in the Pioneer anomaly and observations during solar eclipses. The functionality of the GPS system can be united with a local ether with spherical symmetry. The bending of light near our sun can also be explained. The behavior of atomic clocks is explained by one model instead of by SRT plus GRT. This model is simpler. If we accept this model, we must accept quanta in ether but not necessarily quanta in light.

Accepting the ideas presented here means that gravity can be united with the rest of physics.

References

- [1] Qian-Shen Wang, "Precise Measurements of Gravity Variations during a Total Solar Eclipse", Physical review D 62 041101-1.
- [2] Janos Rohan, <http://astrojan.zz.mu/laki.htm>