

# The Fourth Ether

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The discussions regarding the ether concept have contained 3 alternatives: not existent ether, absolute ether and entrained ether. The ether described here represents a 4:th alternative: an ether, not in itself entrained, but having 2 entrained properties namely gravity and ether wind producing gravity.

## 1. Pushing Gravity

Pushing gravity is an ether model described by Fatio, Le Sage and van Flandern. Fast particles having very small mass are assumed to move in all directions. These particles cannot be detected as individuals. Celestial bodies are assumed to absorb a very small part of these particles. The number of particles leaving a body is therefore to a small extent reduced by absorption. Spherical symmetry means no effect on one body but two bodies are pushed in direction towards each other due to disturbed symmetries.

## 2. Gravitational Aberration

The high stability in planetary orbits implies that the force of gravity is directed towards the gravitating body without aberration. This fact has produced the common opinion that gravity particles move with absurdly high velocities. *This conclusion is wrong.* The mass of our sun is 300 000 times the mass of our planet. The Sun is therefore not moving in the Sun and Earth system. Gravity is therefore a static relation among moving particles in this system. Since gravity does not change the lack of aberration is explained by constant gravity. The observer's state of motion is therefore irrelevant and we cannot observe aberration in gravity from our sun. If Sun and Earth had masses in the same order of magnitude aberration would be observed. If the Moon passed between Sun and Earth aberration would be produced in the small shielding effect only. We can conclude from this that the speed of ether particles can be equal to the speed of light  $c$ . These ether particles can therefore explain propagation of light as well of gravity.

## 3. The Ether Wind

A vertical ether wind can explain gravity. The direction of this ether wind is well known but the magnitude is not known. As a hypothesis it was assumed in [1] that the vertical ether wind is equal to the speed of a satellite in a circular orbit at the same altitude as the ether wind. This hypothesis produced 7.91 km/s at low altitude and 3.87 km/s in a GPS satellite. This means that the two-way speed of light in vertical direction is reduced an amount of  $7 \times 10^{10}$  in relation to horizontal directions. Electrons in an atomic clock are moving forward and back in one dimension in relation to the ether wind. It can therefore be possible that these electrons are affected by the same second order effect as exists in light in Michelson and Morley's experiment. The speed of atomic clocks on Earth can therefore also be reduced by a factor  $7 \times 10^{10}$  if

the clocks are oriented transverse to gravity. This can easily be tested.

The rotation of our planet produces an ether wind of 0.47 km/s at the Equator. This ether wind is detectable by a method described by Dr C C Su in [2]. This method can also detect vertical ether wind. Our planet is moving with the speed 30 km/s in relation to our sun. We observe no ether wind from this motion since this speed is hidden by a wave function that is following our planet. Since we observe no friction superfluidity must exist in the ether. However, *changes* in the wave function demands energy. This explains inertia.

Light is assumed to be a pure wave motion. Transverse ether wind can therefore not bend the wave front. The orientation of a wave front can be changed due to ether wind only by a gradient in longitudinal ether wind. The bending of light near our sun can be described in this way. This is explained in [1].

The speed of individual ether particles can very well be the speed of light  $c$ . It is therefore theoretically possible that a gravitational aberration can exist in the *changes* in gravity produced by the gravitational shielding. However, since the Moon's orbiting is only 1 km/s this aberration is only  $3 \times 10^{-6}$  radians. This small effect in light and gravity must be difficult to detect. Perhaps the existence of shielding can be confirmed.

## 4. Conclusions

The lack of aberration in gravity from our sun can be explained by the very large relation between mass of our sun and mass of our planet. Ether particles can therefore be assumed to move with the speed  $c$ . The ether wind can be many orders of magnitude smaller than  $c$ .

The relevance of clock orientation for clock speed *can very easily be tested.*

## References

- [1] John-Erik Persson, "Stokes Was Wrong", 19:th Annual Conference of the Natural Philosophy Alliance (July 2012), in Absentia. Available at [www.worldsci.org/pdf/abstracts/abstracts\\_6470.pdf](http://www.worldsci.org/pdf/abstracts/abstracts_6470.pdf)
- [2] C. C. Su, J. C. Eur. Phys 21, 701-715 (2001), Digital Object Identifier (DOI) 10.1007/s 100520 100759