

## The Nature of Time

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### Abstract

The hypothesis that light is time is set. A new physical meaning has been proposed, concerning time homogeneity. An explanation has been given of what we measure with watches. The example of Einstein has been reviewed with the two lightnings as an argument. A new meaning has been given to the Einstein's formula of energy. A cause for validity of the relative principle has been proposed.

### Introduction

Time is one of the greatest riddles in physics. Creating of a time machine has been a dream of mankind since a long time ago. However, prior to acquiring such a goal, it would be necessary first of all to clear up the nature of time. The article herein represents a new theory, concerning the nature of time.

### Light is Time

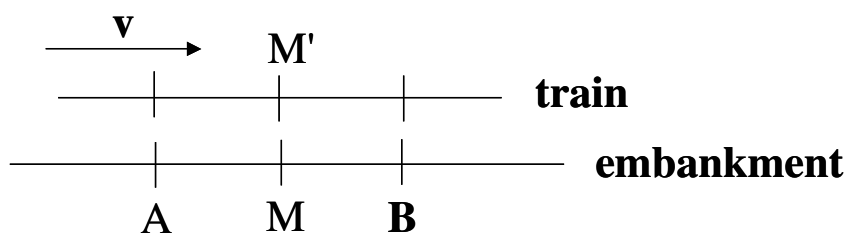
Lets have a look on the famous formula  $x = ct$ . It is clear from that formula that velocity is meaningful. Time runs equally with all inertia systems of reference, and light velocity is equal in there. Therefore, light velocity could have a sense as time velocity. We could also see from the same formula what we measure with watches  $t = x/c$ .

Although light consists of particles (photons) free of mass, it loses a part of its energy, when moving in gravity field. Such a loss of energy leads to the Einstein's red displacement. Time also slows down in a gravity field. Slowing down of time could also be observed at speeds comparable to light velocity. Such retardations could be explained with loss of time homogeneity [1]. Time is homogeneous, because light rectilinearly spreads. Time is not isotropic, i.e. it has not equal properties in all directions, and in the same like light it spreads to one direction. In such a way, the Einstein's formula  $E=mc^2$  acquires a new meaning:

Energy is preserved just because light is a constant.

Let's have a view on two lightnings A and B, which are simultaneous as regards to railroad embankment and moving train. (Fig.1)

Fig. 1.



When we say that the lightnings A and B are simultaneous as regards to the embankment, we consider the following: light beams from the spots A and B of falling the lightnings meet at the medium point of the line segment AB of the embankment. However, the events A and b also correspond to definite points A and b on the train.

Let's assume that  $M'$  is the medium point of the distance AB on the traveling train. Exactly at the moment of falling of the lightnings against the railroad embankment, such a point  $M'$  naturally coincides with the point M. However, it moves to the right direction with the speed of the train. If an observer sitting in the  $M'$  place in the train did not have such a speed, then he would remain forever in M, and the beams of lightnings A and B would reach simultaneously to it, i.e. they would meet exactly there, where it is located. However, in fact, regarding the embankment, it moves against the light beam coming from B, and at the same time it travels before the light beam coming from A. Therefore, the observer would see the light beam emitted by B earlier than the light beam emitted by A. For such a reason any observer who accepts the train as a point of reference should come to the conclusion that the lightning in B has fallen earlier than that in A. The events which are simultaneous referring to the train and vice versa. This is the well-known property of time, called relativity of simultaneousness.

We do not know whether the example with lightnings is casual or not. It shows that the light in both lightnings is being observed in different times by the observer, although it spreads with permanent velocity and is in support of the hypothesis that light is time.

### **Discussion**

According to the relativity principle, the laws of mechanics and electrodynamics are equal in all inertial starting systems of reference. The cause for validity of such a principle could be the fact that time equally runs in such systems, i.e. light spreads with permanent velocity. At super-light speeds the problem of causality is present, according to which effect leaves cause behind.

It is clear from the so stated theory that time and lights much look alike.

### **Reference:**

1. P.Georgiev, On Homogeneity of Time, General Science Journal (2005), <http://wbabin.net/science/georgiev2.pdf>
2. A. Einstein, Relativity: The Special and the General theory, Tethuen & Co. Ltd. London