Absolute motion from dynamics

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Abstract

Both the mechanic of Newton and Einstein arise of the relativity principle derived of the kinematic of the geometric motion, which in Newton apply to the inertial motion while in Einstein to any motion. The relative geometric motion is the change of coordinates of points in a mathematical spacetime between reference frames; therefore it lacks of physical reality and is illusory. Of other hand, studied by the dynamics, the true motion embraces mass, momentum, kinetic energy and force of material particles and bodies. It is the real motion. The changes of energy, which it produces, enable stablish the absolute motion without need of a preferred frame. In this work we prove the existence of the absolute motion and present a general equation of the speed in the absolute motion.

1. Introduction

The discussion on whether the motion is absolute or relative is very antique. Basically, the question is: Is there a preferred frame or not?

In this work, we prove that in any case the motion is absolute. We prove that it is locally possible establish whether a reference frame is really in motion. Also, we prove that in any reference frame is possible measure its absolute speed and we present the equation.

2. The mechanic

The mechanic study the motion subdivided into: Kinematics on the geometry of the motion, modeling it as points according position in the space-time. Dynamics on the material motion modeling it as material particles according their evolution in the spacetime.

In Newton and in the Relativity theory the concept of motion is elaborated only from kinematics. Whereas in Galilei-Newton the inertial motion is an effect of coordinates in Relativity the inertial motion, accelerated motion and gravitational motion are relative states and according to Einstein equivalence principle an effect of coordinates [1]. The geometric motion is illusory resulting equivalent to no motion.

Although, in General Relativity the geometry of the spacetime is absolute since a Minkowski spacetime is not possible transform in a Lorentzian spacetime through of change of coordinates, neither contrary, but the translation of a body is between relative places. Relative space is space measured relative to perceptible bodies and relative time is time measured relative to some perceptible motion. Though they take both, the motion it describes geometrically referring to a coordinate system. Thus, spacetime is a mathematical model that combined space and time, that in philosophy, science and physics it is still an enigma [2] because "We really do not know what spacetime" [3]. "The proponents of General Relativity believe space is non-physical and describe the dynamic activity of space by employing the term geometro-dynamics, thereby underscoring the fact that Einstein's space is a mathematical construct —a 4-dimensional geometrized space-time. The foundation of general relativity is a four coordinate mathematical space" [4].

3. Stablishing absolute motion

The current definition of motion in geometric terms is a fictitious concept since it does not correspond to the material motion comprising mass, momentum, energy and force. Thus, it must be defined by dynamics. Contrarily to kinematics the motion as material phenomenon must be absolute, considered itself, without need of a preferred frame of reference, since momentum and kinetic energy change in function of speed. If in the universe exist particles or bodies at absolute rest then they must lack of momentum and kinetic energy. Too, particles or bodies animated of different speeds they must have different momentum and kinetic energy. Through of the inertia in function of mass and speed will be possible calculate absolute speeds.

Einstein in "The evolution of physics" wrote: "A body at rest has mass but no kinetic energy, that is, energy of motion. A moving body has both mass and kinetic energy. It resists change of velocity more strongly than the resting body. It seems as though the kinetic energy of the moving body increases its resistance. If two bodies have the same rest mass, the one with the greater kinetic energy resists the action of an external force more strongly" [5], since its inertia, i.e. the inertia of the kinetic energy, not of the mass of the body which remains constant, increasing with velocity, tested on particle accelerators. How? We do not know yet. Therefore, relativistic mass does not strictly exist but mass and kinetic energy have inertia. While the mass is conserved, the kinetic energy increases in direct proportion to the absolute velocity.

Therefore, it will be used the relativistic equation:

$force^{\mu} = mass\ \gamma\ acceleration^{\mu}$ γ is the Lorentz factor.

Note that although γ determines the group of transformation of coordinates of Lorentz between inertial references frames, itself γ relates the speed of a frame with c that does not necessarily have to be a relative speed if γ is taking itself. Remember that the best profound meaning of c is "the speed is absolute".

If previous equation it applies to one-dimension, for example, a body moves in the x-direction, subject to a force in the x-direction then it obtains the simplified expression:

force = mass γ acceleration i.e., $f = m\gamma a$

From previous equation it can obtain the relative speed of a body, for example, in the earth's frame, at some particular instant, a body is in relative rest. A moment later the body will be in motion by the action of a force. Therefore:

$$v_{body} = \frac{tf}{m\gamma}$$

t is the proper time of application of f.

For example if t = 1second, m = 1 kilogram, $v_{\text{frame of reference}}$ 29 kilometers/second and f = 1 newton then $1/\gamma = 0{,}9999999953$ and $v_{body} =$ 0,9999999953 meter/second (1)

Assumptions:

- The inertia of any body is compound by the inertia of its mass more the inertia of the absolute speed of its reference frame.

- Anybody, in rest relative respect to its frame of reference in rest absolute, subject to the action of a force, due to that its inertia is only determined by its mass, the equation of its relative speed respect to its frame of reference is:

force = mass x acceleration →

relative speed of body respect to its reference frame = proper time x force / mass,

$$v_{body} = \frac{tf}{m}$$

Since its relative speed will not be affected by γ. Therefore v_{body} = 1 meter/second as would be in the example (1).

- The augment of the inertia from the absolute speed as kinetic energy of the reference frame will cause a decrease in the speed of anybody put in motion from the relative rest respect that frame, inversely proportional to the Lorentz factor. For an absolute speed of 29 kilometer/second of the reference frame, as approximately is the speed of translation of the Earth around of the Sun, the decrease will be given by the multiplicative term 0,9999999953 and v_{body} = 0,9999999953 meter/second as in the example (1) was calculated. Here, the movement of the solar system, our galaxy, etc. is not included. These aggregate movements make up the absolute total movement very probably composed of a finite number of nested movements.

- If the reference frame is in absolute rest then the calculated relative speed of anybody respect to it must exactly coincide, minimum to nine decimal digits, with the true speed which will be the observed speed. On the contrary the reference frame will be in absolute motion, i.e: observed speed of body = tf/m, according to the example (1) v_{body} = 1 meter/second; else the observed speed of body < tf/m, according to the example (1) v_{body} = 0,9999999953 meter/second < 1 meter/second.

- To anybody, in rest relative respect to its frame of reference in absolute motion, subject to the action of a force, due to that its inertia is determined by both mass and absolute speed of its frame of reference the equation of its relative speed respect to its frame of reference is:

force = mass γ acceleration

Where $\gamma=\frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$ v = absolute speed of the frame of reference

Therefore, the general equation to calculate the absolute speed of the frame of reference is:

$$Speed_{reference\ frame}=c\sqrt{1-\left(\frac{mass\ x\ observed\ speed_{body}}{proper\ time\ x\ force}\right)^2}$$

The relative speed of the body respect to reference frame is the observed speed of the body, minimum to nine decimal digits. Mass, time and force the values corresponding to observed speed of the body.

4. Conclusions

According our thesis, the inertia of anybody attached to a reference frame will be in function of both mass of body and absolute speed of its reference frame. So, it will be possible stablish the absolute speed of the reference frame through of put in motion to a body in relative rest respect of the reference frame.

The foundation of the classic physics arises of the false principle of the relative motion derived of the kinematic which reduces motion to the geometric motion lacking of physical reality.

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