

The Terminology of Physical Science in 21. century

Abstract

Nobel laureates in physics are mostly physicists, who mainly create and defend physics. For nearly 100 years ago have been Nobel Prize winners said:

*"- The theory of relativity is a mathematical and not a physical theory."
Einstein and mathematicians brought chaos into physics. They has many non-physical bad concepts:*

The definition of "local time" using the "Lorentz transformation formulas" (space-time).

Introduction

In the endeavor to achieve the almost description of nature, the author is constrained to remove old (not correspondent to the substance nomenclature and terminology) used:

1. in current physics (uniform motion in a straight line, retarded potentials, ...)
2. in special relativity theory (inertial systems, SPACE-TIME, local time, covariant equations, physical definition of simultaneity, invariant interval, Lorentz transformation equations, ..)
3. in old physics (ether, drag coefficient, ...) and replace it with several new terms (medium, equivalent system, quasi-circle motion, new form of the intensity of moving charge of electric field, non-linear form of the interference field, new generalized law of inertia...).

The author is constrained to eliminate bad, harmful and illusory terms. Those terms have been proved as bad by a number of other authors (ether, SPACE-TIME, inertial systems, ...). The author hopes that this will not distract the reader. The author wishes that the reader will take time to study and learn new nomenclature and terminology. The terminology in physics (but also in philosophy and in science in general) is as variable as grade knowledge. Being opposed to this means to stop progress. It is very difficult to express through human language should one wish to explain the finest differences and deviations from ideal terms. All ideal terms used in physics (as well as in philosophy and in the science generally) are a mere approximation to the real state. Thousands of scientists are convinced about that in their struggle for understanding the world. But one must express in some way, so he uses ideal terms, such as straight-line motion, ideal circle motion, etc. Yes, it is impossible to realize those terms in real world, as even the most precise experiments have deviations, error measurements, etc. For more accurate expression it is therefore suitable to use terms with a „quasi-“, (quasi-circle ...). The physicist believe that synchrotron radiation is a movement of electrons along the ideal circle. But in reality, very small deviations from this ideal circle occur, thus electrons move along the quasi-circle, a little deformed circle or rosette respectively (swiveling of perinucleum). In that case they move in slight acceleration in a certain section and a somewhat decelerated in another (alternatively) against the ideal constant velocity along the circle considered by physicists, see [Consequences](#)

[2, point 20](#). Synchrotron radiation is really in author's theory. But electron moves at quasi-circle not on the ideal circle. The ideal circle motion does not exist in reality by radiation of electron.

A stationary cloud is just a rosette, see [Consequences 2, point 20](#), in which the electron moves around the nucleus in the atom. Should the author define every term used in physics, the paper would be even longer. The author has attempted to define principal terms different from those used generally (e. g. medium, see [1.2.1](#)).

Words "intensity of a moving charge" - see, e. g. [\[5\]](#), [\[6\]](#).

The intensity of electric field characterizes electric field in a similar way as the acceleration of gravity characterizes gravitation field. So as no gravitation field could exist, without acceleration of gravity no electric field could exist, without the intensity of the electric field.

Therefore, the field is characterized by its intensity.

Experiments by Fizeau, Harres, Kaufman and Michelson-Morley were evaluated in Einstein's theory of relativity in light of the old (wrong) terms, such as: ether, inertial systems, straight-line motion, Lorentz transformation equations, physical definition of simultaneity, linear form of the interference field...

It is therefore necessary to reassess those experiments in light of the new terms. Such as: medium, non-linear form of interference field, Maxwell equations not only valid in statics, new form of intensity of moving charge of electric field, new generalized law of inertia ... In light of our new theory, also see a motto - [page 2](#) (by P. L. Kapica): "... the theory gets old quickly and it is replaced by another one, based on more perfect ideas... . The experiment, which has been thought through well and performed carefully, will enter a science forever to become its part. Such experiment can be explained differently in different time periods." If I have wrong terms (e. g. ether), at first, I must define them (e. g. medium). Only then I can explain an experiment correctly. I can't explain an experiment correctly on the basis of wrong terms.

It is what Einstein's theory of relativity has done. Selection of symbols is connected with the fact that the author intended to explain and remove a number of terms from present physics, such as "retarded potentials", "dependence of mass on velocity", "physical definition of simultaneity" ... in the simplest and most practical manner.

In order to achieve that, he always had to make a simultaneous record of the position of the charge moving at velocity v and the intensity of the electric field, transmitted in medium at velocity c , independently from the velocity of the charge. He thus achieved the shape of the intensity of the moving charge (see [Fig. 2.1](#) to [2.10](#) and the accompanying text (part [2.1.1](#))).

Please take into account that the theory may be based on mathematical or physical principles.

As for mathematical theory based on mathematical principles, everything is fine.

Similarly, when it comes to physical theory based on physical principles, everything is all right.

Problems arise when it comes to physical theory based on mathematical principles - as is the case of Einstein's theory of relativity, Lorentz transformations,...

In mathematics, the Poincaré conjecture is a theorem about the characterization of the 3-sphere, which is the hypersphere that bounds the unit ball in four-dimensional space. In 1994, Grigori Yakovlevich Perelman proved the Poincaré conjecture. In 2003, he proved (confirmed in 2006) Thurston's geometrization conjecture. This consequently solved in the affirmative the Poincaré conjecture.

In the era when the "marriage of mathematic with physics" is the space – time, many do not know what space is.

Einstein says that gravity "is born" when the substance gets into the network space – time. And Lorentz's transformation "shows" that a son can be a grandfather of his father and that various clocks show different times depending on the speed of movement.

We have returned to the time of the old Jews when they were making a deity-golden calf, poured out of jewelry, and begged him to deliver them from evil. These are now "Einstein's vicious circle" and "space - time" as modern "deities", to which most of today's theoretical physicists pray...

Mathematics in real 3D space is a basic tool of science.

The problem arises when real physical experiments from 3D space are solved in a utopian 4D space that has been transformed (smuggled) into physics by mathematicians from past centuries: Poincaré, Lorentz,...

Einstein and mathematicians brought chaos into physics. They has many non-physical bad concepts:

The definition of "local time" using the "Lorentz transformation formulas" (space-time).

The definition of "covariant equation" using "local time", and "Lorentz transformation equations" (space-time).

The definition of "physical definition of simultaneity" using "covariant equations," "local time" and "Lorentz transformation equations" (space-time).

The definition of "invariant interval" using "physical definition of simultaneity", "covariant equations," "local time" and "Lorentz transformation formulas" (space-time).

Einstein's Theory of Relativity is a mathematical theory. Why is it wrong from the point of view of physics ?

Einstein's Procedure for Synchronizing Clocks

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This page (with animated figures) is available at

<https://www.pitt.edu/~jdnorton/goodies>

John D. Norton's Homepage--redirect

Reactionaries and Einstein's Fame: "German Scientists for the Preservation of Pure Science," Relativity, and the Bad Nauheim Meeting

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Two important and unpleasant events occurred in Albert Einstein's life in **1920**: That August an antirelativity rally was held in the large auditorium of the Berlin Philharmonic, and a few weeks later Einstein was drawn into a tense and highly publicized debate with Philipp Lenard on the merits of relativity at a meeting in Bad Nauheim, Germany.

Nobel laureates in physics are mostly physicists, who mainly create and defend physics. Einstein never received a Nobel prize for relativity...

For nearly 100 years ago have been Nobel Prize winners said:

- "- The theory of relativity is a mathematical and not a physical theory.**
- The theory is far from being confirmed experimentally, the results of the solar eclipse expeditions allow other interpretations**
- The principle of relativity is only valid for mass-dependent movements**
- The theory of relativity contradicts the fundamental ideas about space and time: the Euclidean space and the usual ideas of time must remain binding. "**

• **1.1 Newton** in his book "Mathematical Principles of Natural Philosophy":

Every body continues to rest in a state of rest or a uniform and rectilinear movement, until and because it does not force the forces applied to change this state.

In an **rotating frame** of reference the law of inertia is **allegedly** incorrect, therefore the Newtonian formulation was replaced by **the postulate of the existence of inertial frames of reference (by EINSTEIN !!!)**.

Galilei's, Newton's, Einstein's movement "along a straight line" is a circle with radius 6378 km!!

No real motion can be straight-line one. It is only mathematical definition.

Mathematics is NO PHYSICS !!!

The postulate of the existence of inertial frames of reference does not belong to physics. Neither postulate does not belong to physics.

Physics is based on experiments and not on postulates.

"The difference between a good experiment and a good theory is in the fact that the theory gets old quickly and it is replaced by another one, based on more perfect ideas. It will be forgotten quickly. The experiment is something else. The experiment, which has been thought well and performed carefully, will step in the science forever. It will become its part. It is possible to explain such experiment differently in different periods of times."

P. L. KAPICA

• **1.2 Galileo Galilei**

- The first law (the law of inertia), in a less clear form, was published by Galileo. It should be noted that Galileo allowed free movement **not only along a straight line, but also along a circle (apparently from astronomical considerations)**. Galileo also formulated the most important principle of relativity
- 1996: Let's have a real coordinates system firmly connected with a real laboratory on Earth, where all experiments testing the physical theories are performed. We know that this coordinates system moves around the Earth axis during an astronomical day i. e. it performs a quasi-circular motion. During the year it rotates around the Sun approximately in a quasi-circle together with the Earth. During $2 \cdot 10^8$ years it circulates in the quasi-circle around the center of the Galaxy. It performs a quasi-uniform motion in a quasi-circle together with the Sun.
- The Galaxy performs a quasi-uniform and quasi-circle motion around the center within the framework of metagalaxies of star clusters and our laboratory coordinates system on Earth together with it, etc.
- From the experimental testing of the law of inertia it is known that the body moves along the "plane" stated by a waterlevel, i. e. in fact it is not a straight-line uniform motion, but it is the motion in the circle of the Earth radius of $R=6378$ km.
- The space aeronautics show that space ships, Earth satellites and orbital laboratories move quasi-uniformly in almost a circle around the Earth.

The intensity of moving charge comprises in itself also the magnetic field induction B created by the charge moving at speed v .

Based on $E_{mov} = E_{still} + v \times B$

Maxwell's equations which are always valid (not only in static) acquire the form:

$$\nabla E_{mov} = \nabla(E_{still} + v \times B) = \nabla E_{still} + \nabla(v \times B) = \frac{\rho}{\epsilon_0} \quad \text{Gauss law } (\nabla E_{still} = \frac{\rho}{\epsilon_0}) \quad \nabla B = 0 \quad \text{are no magnetic charges,}$$

in statics: $\nabla \times E_{still} = 0$

$$\nabla \times E_{mov} = \nabla \times [E_{still} + (v \times B)] = \nabla \times E_{still} + \nabla \times (v \times B) \quad \nabla \times (v \times B) = v(\nabla B) - B(\nabla v)$$

$$\nabla \times E_{still} = 0 \quad \nabla \cdot v = \frac{\partial}{\partial t}$$

$$\nabla \times E_{mov} = -\frac{\partial B}{\partial t}$$

Faraday's law

$$\text{Amper's law in statics: } c^2 \nabla \times B_{stat} = \frac{j}{\epsilon_0} \quad \text{Total magnetic field: } B_{dyn} = B_{stat} + B_Q$$

$$B_{dyn} = B_{stat} + (B_{dyn} - B_{stat}) = B_{stat} + B_Q \quad B_Q = B_{dyn} - B_{stat}$$

$$c^2 \nabla \times B_{dyn} = c^2 \nabla \times B_{stat} + c^2 \nabla \times B_Q \quad c^2 B_Q = (v \times B_Q) \times v$$

$$c^2 \nabla \times B_{stat} = \frac{j}{\epsilon_0} \quad \nabla \times [(v \times B_Q) \times v] = (v \times B_Q)(\nabla v) - v[\nabla(v \times B_Q)] =$$

$$= \frac{\partial(v \times B_Q)}{\partial t} = \frac{\partial(E_{mov} - E_{still})}{\partial t} = \frac{\partial E_{mov}}{\partial t}$$

$$\frac{\partial E_{still}}{\partial t} = 0$$

The 4th Maxwell's equation:

$$c^2 \nabla \times B_{dyn} = \frac{j}{\epsilon_0} + \frac{\partial E_{mov}}{\partial t}$$

4. Corrected Newton's Laws of Motion

- **First law:**

"Every mass (atom, molecule, particle, body, vacuum, transmission medium) persists in the status of the quasi-rest or quasi-uniform motion in a quasi-circle, or quasi-ellipse (eccentricity $e \rightarrow 0$) as far as it the external forces do not force it to change its status. (This notion is called the **generalized law of inertia**)."

- **Third law:**

All movements in physics are based **on principle of action - reaction** and **on velocity** of stable particles (e^- , p^+ , n^0 , D , $He-3$, α).

- **Action**, as a motion of stable particles (e^- , p^+ , n^0 , D , $He-3$, α), is characterized by alternating acceleration and deceleration motion in the source, along ellipse or quasi-ellipse (eccentricity $e \rightarrow 0$).

Stable particles of various speed (leptons μ^- , τ^- , baryons, mesons), bosons W^+ , W^- , Z (β electrons) are characterized by kinetic energy in direction of motion

$$T_{kin id} = mc^2 [\ln |1-v/c| + (v/c)/(1-v/c)]$$

- **Reaction** creates in the transmission medium, **electromagnetic waves**, as unstable "particles" -

neutrinos ν_e , ν_μ , ν_τ , mesons π^0 , π^+ , π^- , η , K and gamma rays ($f > 10^{19}$ Hz) are characterized by kinetic against direction of

motion as wave $T_{kin ad} = mc^2 [\ln |1+v/c| - (v/c)/(1+v/c)]$

Accompanying activity of reaction on movement of stable particles in the transmission medium are **waves**, or "unstable particles" i.e. **neutrinos and mesons**.

4. Corrected Newton's Laws of Motion

Consequences

Physics is Easy

Leptons (electron, muon, tau), W^+ - Z bosons and neutrinos (electron neutrino , muon neutrino, tau neutrino) can be replaced with electron moving at different speeds from **0.001c up to 0.999.. c** :

Electron, electron neutrino are in the electron at speed of electron : from $v = 0.001c$ to $v = 0.9 c$

Muon, muon neutrino are in the electron at speed of electron : $v = 0,995308032046c$

Tauon, tauon neutrino are in the electron at speed of electron : $v = 0,99971316674c$

W^+ - boson and neutrino are in the β electron at speed of electron : $v = 0,99999364465781184c$

Z boson and neutrino are in the β electron at speed of electron : $v = 0,999994396590953c$

Higgs Boson 125300 MeV/c² speed of proton : $v = 0,9928305c$ **β electron is radiated from a neutron**

Hyperons, mesons and quarks can be replaced by proton and neutron ,or alpha particle respectively, moving at different speeds from **0.1c up to 0.999.. c** :

Lambda hyperon 2286,46 MeV and pion π^0 : 134.9766(6) MeV are in the proton

at speed of proton $v = 0,8022863362c$

hyperon χ^+ (2645)+ 2646,6MeV and pion π^\pm : 139.57018(35) MeV are in the proton

at speed of proton $v = 0,819183027c$

hyperon Σ^+ 165 GeV and meson K^- 493.7 MeV are in the alpha particle

at speed of alpha particle $v = 0,7533c$

4. Corrected Newton's Laws of Motion

• Consequences

• What is Quark?

Two energies, which are measured in opposite directions, and we consider them as quarks are actually two different kinetic energy of a single proton, the first in the direction of its movement, and the second in the opposite direction. Quarks are actually locked (**confinement**) in proton, as is clear from the individual tables.

-QUARK = proton of different speeds

A pair of quarks of one generation = one speed of proton:

u,d quarks are in the proton at speed of **proton** : from $v= 0,05875c$ to $v= 0,105065c$

c,s quarks are in the **proton at speed of proton** from $v=0,713c$ to $v=0,7805c$

t quark is in the proton (neutron) at speed of **proton (neutron)**:

$v=0,994637c$ for **top quark: 169 100MeV**

$v=0,994766c$ for **top quark: 173 400MeV/c²**

b quark is in the proton (neutron) at speed of **proton (neutron): $v=0,8665c$ for 4,2 GeV bottom quark**

4. Corrected Newton's Laws of Motion

Consequences

A pair of quarks of one generation = one speed of proton:

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$v=0,994637c$ for **top quark: 169 100MeV**

$v=0,994766c$ for **top quark: 173 400MeV/c²**

b quark is in the proton (neutron) at speed of **proton (neutron): $v=0,8665c$ for 4,2 GeV bottom quark**

u,d quarks are in the proton at speed of proton :
from $v= 0.05875c$ to $v= 0.105065c$

| v/c | $T_{kin id} = mc^2[\ln 1-v/c + (v/c)/(1-v/c)]$ | $T_{kin ad} = mc^2[\ln 1+v/c - (v/c)/(1+v/c)]$ |
|-----------------|---|---|
| 0.05875 | Down quark $T_{kin id} = 1.7550$ MeV / p: [] = 0.0018704988039450329861777626124876 | Up quark $T_{kin ad} = 1.5$ MeV / p: [] = 0.0015986835148543461794415692315107 |
| 0.075 | Down quark $T_{kin id} = 2.92697671$ MeV / p: [] = 0.0031195396113692225967210545118109 | Up quark $T_{kin ad} = 2.4$ MeV / p: [] = 0.002553219719161004341317048303269 |
| 0.081622 | Down quark $T_{kin id} = 3.5$ MeV / p: [] = 0.0037302615346601410853636615401917 | Up quark $T_{kin ad} = 2.81404106871$ MeV / p: [] = 0.002999174044442449432232831693702 |
| 0.08878 | Down quark $T_{kin id} = 4.18366235$ MeV / p: [] = 0.0044589013511482922312132108807756 | Up quark $T_{kin ad} = 3.3$ MeV / p: [] = 0.003517103732679561594771452309324 |
| 0.094686 | Down quark $T_{kin id} = 4.8$ MeV / p: [] = 0.0051156918494022662432562213837619 | Up quark $T_{kin ad} = 3.72637$ MeV / p: [] = 0.003971527848360625619647345216845 |
| 0.105065 | Down quark $T_{kin id} = 6$ MeV / p: [] = 0.0063947340594173847177662769260429 | Up quark $T_{kin ad} = 4.530260$ MeV / p: [] = 0.0048283015026596502291040657295924 |
| | Quarks are actually locked (confinement) in proton | as is clear from the individual tables |

t quark to b quark are in the proton at speed of proton :
from $v= c$ to $v= 0. c$ t quark $m_0 = 172.44 \pm 0.13$ (stat) ± 0.47 (syst) $\text{GeV}/c^{2[1]}$,

$m_0 = 173.4$ MeV/c², Theorized [Makoto Kobayashi](#) and [Toshihide Maskawa](#) (1973) Discovered [CDF](#) and [DØ](#) collaborati
Decays into: [bottom quark](#) (99.8%), [strange quark](#) (0.17%), [down quark](#) (0.007%)

| v/c | $T_{kin id} = mc^2[\ln 1-v/c + (v/c)/(1-v/c)]$ | $T_{kin ad} = mc^2[\ln 1+v/c - (v/c)/(1+v/c)]$ |
|-----------------|--|--|
| 0.994766 | top quark $T_{kin id} = 173.4$ GeV / p: [] = 184.8078143171624183434454 | $T_{kin ad} = 179.9968678$ MeV / p: [] = 0.191838683558878228973 |
| 0.994637 | top quark $T_{kin id} = 169.1$ GeV / p: [] = 180.2249215745799592957129 | $T_{kin ad} = 179.96660877927$ MeV [] = 0.191806433786441122906 |
| 0.8665 | bottom quark $T_{kin id} = 4.2$ GeV / p: [] = 4.476313841592169302436394 | $T_{kin ad} = 149,9613333459543879$ MeV [] = 0.159827140990503087217669575 |
| | t -> b -> c -> s -> u <-> d This decay of quarks actually means a reduction of the speed of proton | |

| v/c | $T_{kin id} = mc^2[\ln 1-v/c + (v/c)/(1-v/c)]$ | $T_{kin ad} = mc^2[\ln 1+v/c - (v/c)/(1+v/c)]$ |
|----------|---|---|
| 0.994766 | top quark $T_{kin id} = 173.4$ GeV / p: [] = 184.8078143171624183434454 | $T_{kin ad} = 179.9968678$ MeV / p: [] = 0.191838683558878228973 |
| 0.994637 | top quark $T_{kin id} = 169.1$ GeV / p: [] = 180.2249215745799592957129 | $T_{kin ad} = 179.96660877927$ MeV [] = 0.191806433786441122906 |
| 0.8665 | bottom quark $T_{kin id} = 4.2$ GeV / p: [] = 4.476313841592169302436394 | $T_{kin ad} = 149,9613333459543879$ MeV [] = 0.159827140990503087217669575 |
| 0.73333 | charm quark $T_{kin id} = 1.340$ GeV / p: [] = 1.4281572732698825869678018 | strange quark $T_{kin ad} = 119.1311$ MeV / p: [] = 0.12696860023316592749751861919307 |
| 0.72585 | charm quark $T_{kin id} = 1.270$ GeV / p: [] = 1.3535582771630143437838209404184 | strange quark $T_{kin ad} = 117.41941$ MeV / p: [] = 0.12514431408438967945446850497659 |
| 0.713 | charm quark $T_{kin id} = 1.160$ GeV / p: [] = 1.236047494268773255524413529431 | strange quark $T_{kin ad} = 114.485493763640$ MeV / p: [] = 0.12201738104659464824870350196726 |
| 0.105065 | Down quark $T_{kin id} = 6$ MeV / p: [] = 0.0063947340594173847177662769260429 | Up quark $T_{kin ad} = 4.530260$ MeV / p: [] = 0.0048283015026596502291040657295924 |
| 0.08878 | Down quark $T_{kin id} = 4.18366235$ MeV / p: | Up quark $T_{kin ad} = 3.3$ MeV / p: |