Kinetic energy

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Abstract

Relationship Lorentz derived from the asymmetrical form of the intensity of the moving charge. To derive it we do not need Lorentz's transformations equations, that is we do not need SPACE-TIME. We do not need local time, or covariant equations or physical simultaneity definition or invariant interval. In other words, in physics we do not need Einstein's theory of relativity. From the asymmetrical form of the intensity of the moving charge we can derive Gauss law, Faraday's law and derive the 4th Maxwell's equation, fictional by Maxwell and not to be derived.Kinetic energy of a charge moving at the velocity of *v* has two different values: in direction of motion as own kinetic energy of charge and against direction of motion of charge represents the wave energy, which creates charge in transmision medium.

Introduction

The main differences between incompetent Einstein's theory[1] and the latest knowledge[2]are:

1.Form of Intensity of the Moving Charge Electric Field is asymmetrical,

2. Form of the interference field is non-linear,

3. Kinetic energy of a charge moving at the velocity of *v* has two different values:

Kinetic energy of electron , (proton)

$T_{kin\ id} = mc^2\ [\ln |1-v/c| + (v/c) / (1-v/c)\ ]$ in direction of motion of electron, (proton)

where v is velocity of electron, (proton).

Kinetic energy of electron , (proton)

$T_{kin\ ad} = mc^2\ [\ln |1+v/c| - (v/c) / (1+v/c)\ ]$ against direction of motion of electron, (proton)

where v is velocity of electron, (proton).

These are the main differences between incompetent Einstein's theory and the latest knowledge.

Theory

Kinetic energy of electron (proton) $T_{kin\ id} = mc^2\ [\ln|1-v/c| + (v/c)/(1-v/c)]$ in direction of motion of electron (proton), where *v* is velocity of electron (proton) and *m* is mass of electron (proton)[2]. It's own kinetic energy of the electron (proton).

Kinetic energy of electron (proton) $T_{kin\ ad} = mc^2\ [\ln|1+v/c| - (v/c)/(1+v/c)]$ against direction of motion of electron (proton), where *v* is velocity of electron (proton) and *m* is mass of electron (proton. Represents the wave energy, which creates electron (proton) in transmision medium.

Electron (proton) as a source exists if and only if repeatedly speeds up and slows down its movement in source along ellipse (when blinks).

Electron (proton) as a source, creates in the transmission medium, electromagnetic wave, that spreads in all directions with the velocity *c / n*,

regardless of the source movement, where *n* is the refractive index of the transmission medium.

In other words, electron (proton) , which is the source, can not be a transmission medium and remain in it.

The main characteristic of the waves is the energy transfer through a transmission medium.

And no transfer of the substance (= of real electron,proton) from the source to the transmission medium.

Wave exists if and only if there is not a source.

In the case of electromagnetic waves, see

2.1.3 The electromagnetic field. Maswell's equations, p. 28[2] electric field intensity *E* and the magnetic induction *B* are both associated with the intensity of a moving charge

$$\boldsymbol{E}_{\text{mov}} = \boldsymbol{E}_{\text{still}}\left(1-\frac{v}{c}\cos\vartheta\right)^2 = E_{still} + B \quad \text{where} \quad B = \frac{E_{\text{still}}}{c}\left(2+\frac{v}{c}\sin\phi\right)$$

The force acting on the moving electric charge is

$$\boldsymbol{F} = Q\boldsymbol{E}_{\text{mov}} = Q\boldsymbol{E}_{\text{still}}\left(1-\frac{v}{c}\cos\vartheta\right)^2 = Q\boldsymbol{E}_{\text{still}}\left(1+\frac{v}{c}\sin\phi\right)^2 =$$
$$= Q\boldsymbol{E}_{\text{still}} + Q\boldsymbol{E}_{\text{still}}\left(2+\frac{v}{c}\sin\phi\right)\frac{v}{c}\sin\phi$$

whereby $-\cos\beta = \sin\phi$

$$\boldsymbol{F} = \boldsymbol{F}_{\text{el}} + \boldsymbol{F}_{\text{m}} = Q\boldsymbol{E} + Q(\boldsymbol{v}\times\boldsymbol{B})$$

What is the relationship Lorentz derived from the asymmetrical form of the intensity of the moving charge. To derive it we do not need Lorentz's transformations equations, that is we do not need SPACE-TIME.
We do not need local time, or covariant equations or physical simultaneity definition or invariant interval. In other words, in physics we do not need Einstein's theory of relativity.

From the asymmetrical form of the intensity of the moving charge we can derive Gauss law,

Faraday's law and derive the 4th Maxwell's equation, by a Maxwell thinks up and not derived !

The electromagnetic field. Maswell's equations. (Cited from [2] pages 27 – 30):

„Let us take the equation (2.20) in the vector form:

$$\boldsymbol{E}_{\text{mov}} = \boldsymbol{E}_{\text{still}}\left(1-\frac{v}{c}\cos\vartheta\right)^2 \qquad (2.21)$$

The force acting on the moving electric charge is

$$\begin{aligned}\boldsymbol{F} = Q\boldsymbol{E}_{\text{mov}} &= Q\boldsymbol{E}_{\text{still}}\left(1-\frac{v}{c}\cos\vartheta\right)^2 = Q\boldsymbol{E}_{\text{still}}\left(1+\frac{v}{c}\sin\phi\right)^2 = \\ &= Q\boldsymbol{E}_{\text{still}} + Q\boldsymbol{E}_{\text{still}}\left(2+\frac{v}{c}\sin\phi\right)\frac{v}{c}\sin\phi\end{aligned} \qquad (2.22)$$

whereby $-\cos\beta = \sin\phi$

It is known, in line with the classical theory, that a magnetic field is created by the moving charges and electric currents. The result is that the moving charge creates its own magnetic field of induction $\boldsymbol{B}_q$. It continues in this field in motion. According to Lorentz, the force acting on the moving charge in the electromagnetic field at speed v in the magnetic field of induction $\boldsymbol{B}$ and in the electric field of the following intensity $\boldsymbol{E}$ it is valid:

$$\boldsymbol{F} = \boldsymbol{F}_{\text{el}} + \boldsymbol{F}_{\text{m}} = Q\boldsymbol{E} + Q(\boldsymbol{v}\times\boldsymbol{B}) \qquad (2.23)$$

Let us compare the equations (2.22) and (2.23) .

Intensity $\boldsymbol{E}$ of the electric field according to Lorentz equals to our intensity $\boldsymbol{E}_{still}$.

As the forces acting on the acting on the moving charge are equal, it must be valid

$$\boldsymbol{E}_{\text{still}}\left(2+\frac{v}{c}\sin\phi\right)\frac{v}{c}\sin\phi = \boldsymbol{v}\times\boldsymbol{B} \qquad (2.24)$$

With regard to the fact that both the direction $\boldsymbol{E}_{still}$ and the direction of the vector $\boldsymbol{v}\times\boldsymbol{B}$ are identical, for the absolute values it is possible to write

$$E_{still}\left(2+\frac{v}{c}\sin\phi\right)\frac{v}{c}\sin\phi = v\cdot B\cdot\sin\phi$$

i.e.

$$B = \frac{E_{still}}{c}\left(2+\frac{v}{c}\sin\phi\right) \tag{2.25}$$

This means that the charge moving at speed ***v*** creates around itself its own magnetic field of the following induction: $B = \frac{E_{still}}{c}\left(2+\frac{v}{c}\sin\phi\right)$

while the vectorial equation is in force

$$\boldsymbol{v}\times\boldsymbol{B} = \boldsymbol{E}_{mov} - \boldsymbol{E}_{still} \tag{2.26}$$

Where from

$$\boldsymbol{E}_{mov} = \boldsymbol{E}_{still} + \boldsymbol{v}\times\boldsymbol{B} \tag{2.27}$$

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

Based on (2.27) Maxwell's equations which are always valid (not only in static) acquires form:

1.

$$\nabla\boldsymbol{E}_{mov} = \nabla(\boldsymbol{E}_{still}+\boldsymbol{v}\times\boldsymbol{B}) = \nabla\boldsymbol{E}_{still}+\nabla(\boldsymbol{v}\times\boldsymbol{B}) = \frac{\rho}{\varepsilon_0} \quad \text{(...Gauss law)} \tag{2.28}$$

because $\nabla(\boldsymbol{v}\times\boldsymbol{B}) = 0$ (2.29)

2. $\nabla\boldsymbol{B} = 0$ .... there are no magnetic charges (2.30)

3. $\nabla\times\boldsymbol{E}_{mov} = \nabla\times[\boldsymbol{E}_{still}+(\boldsymbol{v}\times\boldsymbol{B})] = \nabla\times\boldsymbol{E}_{still}+\nabla\times(\boldsymbol{v}\times\boldsymbol{B})$

becose in the statics $\nabla\times\boldsymbol{E}_{still} = 0$

further $\nabla\times(\boldsymbol{v}\times\boldsymbol{B}) = \boldsymbol{v}(\nabla\boldsymbol{B}) - \boldsymbol{B}(\nabla\boldsymbol{v})$

We use (2.29) and except of constant it is valid

$$\nabla \cdot v = \frac{\partial}{\partial t} \tag{2.31}$$

Then

$$\nabla \times \boldsymbol{E}_{\text{mov}} = -\frac{\partial \boldsymbol{B}}{\partial t} \qquad \text{(...Faraday's law)} \tag{2.32}$$

4. Amper's law in statics

$$c^2 \nabla \times \boldsymbol{B}_{\text{stat}} = \frac{\boldsymbol{j}}{\varepsilon_0} \tag{2.33}$$

$$\boldsymbol{B}_{\text{dyn}} = \boldsymbol{B}_{\text{stat}} + \left(\boldsymbol{B}_{\text{dyn}} - \boldsymbol{B}_{\text{stat}}\right) = \boldsymbol{B}_{\text{stat}} + \boldsymbol{B}_{\text{Q}}$$

Total magnetic field

$$\boldsymbol{B}_{\text{dyn}} = \boldsymbol{B}_{\text{stat}} + \boldsymbol{B}_{\text{Q}} \tag{2.34}$$

where

$$\boldsymbol{B}_{\text{Q}} = \boldsymbol{B}_{\text{dyn}} - \boldsymbol{B}_{\text{stat}} \tag{2.35}$$

Let's calculate $c^2 \nabla \times \boldsymbol{B}_{\text{dyn}} = c^2 \nabla \times \boldsymbol{B}_{\text{stat}} + c^2 \nabla \times \boldsymbol{B}_{\text{Q}}$

For own magnetic field B_Q of the charge moving at speed v it is possible to write:

$$c^2 \boldsymbol{B}_{\text{Q}} = \left(\boldsymbol{v} \times \boldsymbol{B}_{\text{Q}}\right) \times \boldsymbol{v} \tag{2.36}$$

$$\nabla \times \left[\left(\boldsymbol{v} \times \boldsymbol{B}_Q\right) \times \boldsymbol{v}\right] = \left(\boldsymbol{v} \times \boldsymbol{B}_Q\right)\left(\nabla \boldsymbol{v}\right) - \boldsymbol{v}\left[\nabla\left(\boldsymbol{v} \times \boldsymbol{B}_Q\right)\right] =$$
$$= \frac{\partial\left(\boldsymbol{v} \times \boldsymbol{B}_Q\right)}{\partial t} = \frac{\partial\left(\boldsymbol{E}_{\text{mov}} - \boldsymbol{E}_{\text{still}}\right)}{\partial t} = \frac{\partial \boldsymbol{E}_{\text{mov}}}{\partial t}$$

because $\nabla\left(\boldsymbol{v} \times \boldsymbol{B}\right) = 0$, $\nabla \cdot v = \frac{\partial}{\partial t}$, $\boldsymbol{E}_{\text{mov}} = \boldsymbol{E}_{\text{still}} + \boldsymbol{v} \times \boldsymbol{B}$

and because $\frac{\partial \boldsymbol{E}_{\text{still}}}{\partial t} = 0$ (2.37)

i.e. $$\boldsymbol{c}^2 \nabla \times \boldsymbol{B}_{\text{dyn}} = \frac{\boldsymbol{j}}{\varepsilon_0} + \frac{\partial \boldsymbol{E}_{\text{mov}}}{\partial t} \tag{2.38}$$

what represents the 4th Maxwell's equation“.

Form of the interference field is non-linear: **2.2.1. Fizeau's Experiment , 2.2.2. Harres's Experiment** (from [2] pages 34 – 39).

Calculation of the kinetic energy T_{kin} of a body moving at the velocity of v

v/c	Vlcek ´s theory $T_{kin\ ad}$ = $mc^2[\ln|1+v/c| - (v/c)/(1+v/c)]$	Vlcek ´s theory $T_{kin\ id}$ = $mc^2[\ln|1-v/c| + (v/c)/(1-v/c)]$	Vlcek ´s theory $(T_{k\ ad} + T_{k\ id})/2$	Einstein ´s theory T_{kin}
0.1	0.00439 mc^2	0.0057 mc^2	0.0050 $m\ c^2$	0.0050 $m\ c^2$
0.2	0.0156 mc^2	0.0268 mc^2	0.0212 $m\ c^2$	0.0200 $m\ c^2$
0.3	0.0316 mc^2	0.0719 mc^2	0.0517 $m\ c^2$	0.0480 $m\ c^2$
0.4	0.0508 mc^2	0.1558 mc^2	0.1033 $m\ c^2$	0.0910 $m\ c^2$
0.5	0.0722 mc^2	0.3068 mc^2	0.1895 $m\ c^2$	0.1550 $m\ c^2$
0.6	0.0950 mc^2	0.5837 mc^2	0.3393 $m\ c^2$	0.2500 $m\ c^2$
0.7	0.1174 mc^2	1.1293 mc^2	0.6233 $m\ c^2$	0.4010 $m\ c^2$
0.8	0.1434 mc^2	2.3905 mc^2	1.2669 $m\ c^2$	0.6670 $m\ c^2$
0.9	0.1680 mc^2	6.6974 mc^2	3.4327 $m\ c^2$	1.2930 $m\ c^2$
0.99	0.1906 mc^2	94.3948 mc^2	47.294 $m\ c^2$	6.9200 $m\ c^2$
1.0	0.1931 mc^2	infinite	infinite	infinite

Direct measurement of the speed in the experiments Kirchner[3], [4], Perry, Chaffee [5]

For v/c = 0.08-0.27 can not yet prove the validity of Vlcek's theory[2] or Einstein's theory[1].

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