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New Law to Calculate Speed of (Electron and Proton) in Electrical Field

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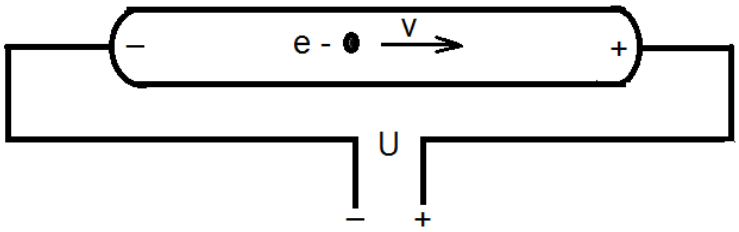
Abstract
The classical electrodynamics and special relativity theory of Einstein can calculate the speed of the electron or the proton, But each of it a range in the application. and a new single Law to calculate the speed has been discovered, this law is very easy.

1.Introduction

In the cathode-ray, X-rays or generator even accelerators, the moving speed of the particle (electron, for example) plays a very important role in the study of the movement of the particle and its results.
Electron is subjected to high electric field, Evacuated from the air as much as possible (under very low pressure) electron moves, and equipped with tow electric poles are the cathode and the anode.
Provides electric voltage U (voltage), the value of U are determined by the speed of the electron V. the electron subject electrical force F Leads to the acceleration of electron at speed V.



We know that there are laws to calculate the speed of the charged particles is subject to classical electrodynamics ,as well as other laws are subject to Einstein's theory of special relativity.
The difference between them is that the laws of the classical electrodynamics fit perfectly when the movement of the particles Low speeds in relation to the speed of light almost any if less than 10%C of the speed of light C , But if the particle speed exceeded 10% C is not suitable the classical electrodynamics laws then but fit the laws of special relativity excellently.

2. Compare now between the classical electrodynamics law and the laws of Einstein to calculate the speed:

2.1 the classical electrodynamics law

We use the following law:

$$V = \sqrt{\frac{2eU}{m}}$$

Where (e) electron's charge $e = 1.602X10^{-19}$ coulomb
Mass of the electron $m = m_0 = 9.11X\,10^{-31}$
Where U : tension electric user

2.2 Einstein's special relativity laws

We use the following law:

$$V = C\sqrt{1-(\frac{m_0}{m})^2}$$

$m = m_0 + \Delta m$

: Rest mass m_0

$$\Delta m = \frac{e.U}{C^2} \quad .. kg$$

Increase in the mass the : Δm

Kinetic mass :m

We note that:

The classic has one law to calculate the speed of the particle but Einstein has three laws to calculate the speed we need more time but it is suitable to high speeds greater than 10% C.

2.3 New law (Jabr's Low)

I managed to find a third law which is different from the laws of classic and Einstein. And which gives the same accuracy the laws of classic and Einstein, in both cases when the simple speed and high.

It is as follows:

$$V = C\sqrt{1-\frac{1}{(1+\frac{U}{U_0})^2}}$$

$U_0 = constant = 511797.7528$ volts Electron For

$U_0 = constant = 939660674$ volts For proton

$c = 3X10^8 \ \frac{m}{s}$ is: speed of light :C

You can be sure of the validity of this law at any voltage whether big or small ,it gives us a very accurate results.

This law was discovered when I was trying to develop a "coherent physical formula" I hope to be the first step to unify physics under one theory we can derive them most of the major theories in physics are ((general theory of physics))

3. Results

Exact match between results of Einstein theory of relativity and Jabr's law.

Classical electrodynamics laws wrong results when it increases the moving speed of about 10%C

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Law of Jabr to calculate speed is simple and suitable for all small and large velocities and in any cases:

V≥10%C

V< 10%C

4. Conclusions

Table (1) the subsequent great convergence in the results to calculate the speed of the electron between the classical theory and the laws of Einstein's relativity and the new law. this is done when the small U i.e. at small speeds.

But when U electric tension increases where speed increasing to become a big difference and this difference grows with increasing tension U,

Table (2) illustrates the difference between speed and Speed ratio calculated in accordance with the classical electrodynamics and special relativity Einstein laws and the new law. As for the identification between the results of Einstein's laws and the new law is an exact match, The difference in the numbers after the comma resulting from the large number of arithmetic operations in the laws of Einstein, Because the number of laws when Einstein to calculate the speed is Three laws while the new law is only on.

The table (1) shows that As well table (2).

The new law is the easiest of the laws of Einstein's calculations because it does not require many calculations.

The new law has been deduced from an in-depth study that Aimed at facilitating physics for students and researchers to the extent possible, and enriching physics in the theoretical studies and researches. They also confirm authenticity of the theory of relativity. When this law and others gave results that are identical to the results relativity they eliminate the doubts that still inspire some about the validity and accuracy of relativity.

Table (1)

Classic	**Einstein**	**New law (Jabr's Low)**	**unit**	**Tension (voltage)**
$V=\sqrt{\frac{2eU}{m}}$	$V=C\sqrt{1-(\frac{m_0}{m})^2}$ $m=m_0+\Delta m$ $\Delta m=\frac{e.U}{C^2}$	$V=C\sqrt{1-\frac{1}{(1+\frac{U}{U_0})^2}}$	$\frac{m}{s}$	U: volts
59304410	58451324,47	58451324,47	$\frac{m}{s}$	10^4
83869100	81499670,85	81499670,8	$\frac{m}{s}$	2.10^4
102718251	98442274	98442274	$\frac{m}{s}$	3.10^4
118668820	112139746,4	112139746,4	$\frac{m}{s}$	4.10^4
132608692	123721905,9	123721905,9	$\frac{m}{s}$	5.10^4
145265544	133779027,1	133779027,1	$\frac{m}{s}$	6.10^4
156904720	14266800,7	142668006,7	$\frac{m}{s}$	7.10^4
167738201	150625290,7	150625290,7	$\frac{m}{s}$	8.10^4
177913230	157817690	157817690	$\frac{m}{s}$	9.10^4
187537011	16468417,5	16468417,5	$\frac{m}{s}$	10^5

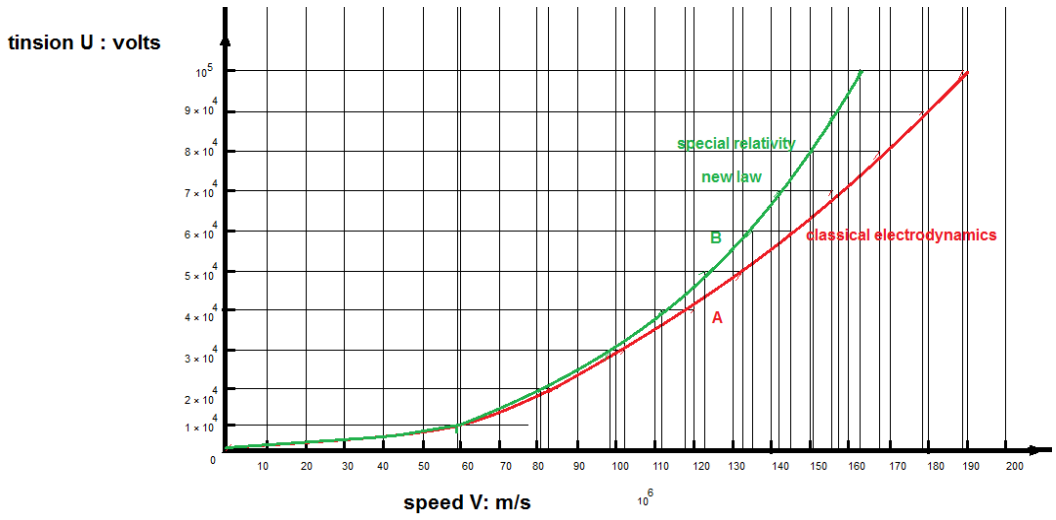
Table 2
This table shows the extent of the difference between the results of the classical theory of law and the laws of Einstein's relativity and the new law.
More than the difference of the results the greater the tension U - Red color shows the gross difference between the classical law and the laws of special relativity and the new law.

Table 2

U(voltage) : volts	$\Delta V : \frac{m}{s}$	$\frac{V_{class}}{V}$
10^4	853095,92	1,01459
4.10^4	6529073,6	1,05822
8.10^4	17112910,3	1,11361
10^5	185888593,5	11,3876

U(voltage) : volts	$\Delta V : \frac{m}{s}$	$\frac{V_{class}}{V}$
10	27,549	1,00001469
10^4	853095,85	1,014595
10^6	310758156	2,1008626
10^{15}	$5,9004420325.10^{15}$	197,69

The chart shows how the large deviation between the results of the calculations according to the law of the classical theory (A) and the laws of special relativity (B) or the new law.
1. Red Line graph (A) represents the law of the classical theory calculations.
2. Green Line graph (B) represents the laws of special relativity accounts or the new law.



References:
Francis Weston & M.rsl Webr & Mark . Zemnske & James A. Retchard, (1973), Modern physics for universities.
Bole Coderec , (1971) , From Newton to the relativity.