A single fermion perceiving the Lorentz force

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Abstract

We compute the equations of motion of a single fermion perceiving the Lorentz force.

1 Introduction

We take off with the equations of motion, i.e. the Lorentz force and Maxwell's equations:

$$\begin{aligned}
\vec{F} &= \omega^2 \times \vec{r} + \frac{Q}{[} r] && (1)\\
\div \vec{E} &= \frac{\rho}{\epsilon} && (2)\\
\div \vec{B} &= c^2 && (3)\\
rot \vec{E} &= -\frac{\partial \vec{B}}{\partial t} && (4)\\
rot \vec{B} &= \mu^2 \vec{j} + \frac{1}{c^2} \frac{\partial \vec{E}}{\partial t} && (5)
\end{aligned}$$

You are observing that there is of the four Maxwell equations has been modified.
The question is: how can the divergence be physically interpreted?
The divergence of the fields B, E can be interpreted as the change of their value within space and this is interpreted throughtout this work as the 'velocity' or better flow.
We will interprete the value later in this letter.

2 The specific solution

We compute the solution of the system of equations of motion in polar coordinates. Therein the divergence is represented as the cosine, the rotation as the sine. The two termes of the Lorentz force are interpreted as sine and cosine. Therefore the system of equations of motions is:

$$
\begin{aligned}
F &= |\omega^2||r|\sin\psi + \frac{Q}{r}\cos\phi && (6)\\
div\frac{Q}{r}\cos\psi &= \frac{Q}{\epsilon} && (7)\\
div|\omega^2|r|\sin\psi &= c^2 && (8)\\
rot\cos\phi\frac{Q}{r} &= -\frac{\partial\sin\psi}{\partial t}\omega^2|r| && (9)\\
rot|\omega^2|r|\sin\psi &= \mu^2 I + \frac{1}{c^2}\frac{\partial}{\partial t}\partial Q\sin\phi\frac{1}{r} && (10)
\end{aligned}
$$

It follows with $c^2 = 1/\epsilon\mu = (4\pi i)/(1)$:

$$
\begin{aligned}
-\frac{Q}{r^2} &= \frac{Q}{\epsilon} && (11)\\
4\pi i &= c^2 && (12)\\
\frac{Q}{r} &= -4\pi && (13)\\
4\pi &= \frac{1}{4\pi}I - 1 && (14)
\end{aligned}
$$

The result for the current is:

$$
I = 4\pi\dot{(}4\pi + 1) \qquad (15)
$$

The value 4π is associated with the spin one half as first has been discovered by Dirac.

3 Conclusions

If we associate the value 4π with a spin one half particle and we interpret the 1 as trhe value of a photon.