

Relativistic Constancy of Charge

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Abstract: One has explained why electric charge does not depend on velocity. The relations between electric and magnetic charge have been used in this purpose.

We have the formulas:

$$m = \alpha |Q| \quad \text{and} \quad Q = Q_0 e^{i\left(\frac{m}{n} 2\pi + \varphi_0\right)}$$

The problem arises why the factor $\frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$ cannot be absorbed by $|Q|$ according to unity of multiplication.

$$\text{Next, } m = \frac{m_0}{\sqrt{1-\frac{v^2}{c^2}}}.$$

Really, if $v < c$, nothing would change.

If $v > c$ and $v \in R$, then both Q and $\frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$ are purely complex. So $q = \frac{Q}{\sqrt{1-\frac{v^2}{c^2}}}$ is real and cannot be expressed by a complex number.

The Nature gains something and loses something, so this “transaction” is not “profitable”.
So charge does not depend on velocity.

We can analyze this problem more precisely.

Let's be:

$$n = 2, \quad m = 0, \quad \varphi = \frac{\pi}{2}.$$

We have:

$$A = \cos \frac{\pi}{2} + i \sin \frac{\pi}{2} = i$$

A is purely complex.

So the factor $\frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$ ($v > c$) forbids the possibility that Q_{eff} is purely complex.

So the magnetic charge does not exist, what is discrepant with one of my previous works.
If electric charge depended on velocity, there would not be magnetic charge for $v > c$.