

Evidence of a neutral potential surrounding the earth.

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Abstract

We examine the associated wave of the electron, and we put in evidence the problem with its relative velocity. The velocity of an electron is always measured relative to the laboratory, which gives the correct behaviour of the electron relative to the law of Louis de Broglie. But, to agree with this law, there must exist some interaction between the electron and the laboratory, which allows the electron to modify its characteristics. The electron must therefore interact with a media connected to the laboratory. Such a media must be associated with the earth, following it in its path through the Universe. **It follows that the relativity theories of A. Einstein are wrong.**

1 Introduction

We examine an electron in constant linear movement, such an electron has an associated wave, which follows the law of Louis de Broglie.

$$m_e v \lambda = h \tag{1}$$

The problem we pose is: The velocity, in this equation, is relative to what?

It is first necessary to find a way to make a sufficiently precise measurement of the wave length, before discussing the velocity of the electron. For this purpose we use the results from X-ray diffraction experiments, which measure the mean position of the atoms in a crystal[1].

The wavelength of a photon is

$$E = h\nu \Rightarrow \lambda = \frac{hc}{E} \tag{2}$$

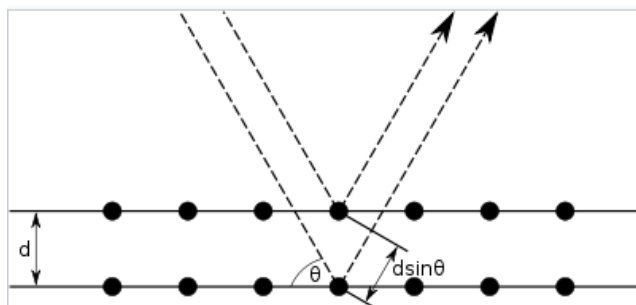


Figure 1: Bragg diffraction[3]. Two beams with identical wavelength and phase approach a crystalline solid and are scattered off two different atoms within it. The lower beam traverses an extra length of $2d \sin \theta$. Constructive interference occurs when this length is equal to an integer multiple of the associated wave's wavelength.

[3]

We then use Bragg's law[2]

$$n\lambda = 2d \sin \theta \quad (3)$$

where d is the distance between atomic layers and n is the number of wavelength.

The photon's velocity is much higher than the difference of velocity between the earth and an eventual surrounding media, i.e., any such relative velocity can be neglected (considering the precision of the result obtained). If we direct an X-ray beam versus a crystal, we obtain Bragg's reflection (see fig. 1). We can then calculate the distance between atoms in a crystal, with a precision much higher then needed for our reasoning.

2 Electron diffraction

We now replace the X-ray beam with a low energy electron beam. This gives the same picture but, the electron are reflected from the electron cloud surrounding the atoms which produce a lower precision (but sufficient for our demonstration). We are interested in Low Energy Electron Diffraction (LEED)[4], since the velocity of the electron beam is in the same order, as an eventual relative velocity between the earth and a surrounding media.

Let us imagine an electron beam, with a non relativistic velocity, directed versus a crystal, such electrons give also a Bragg's reflection (see fig. 1). The electron's associated wavelength should be comparable with the distance between the atoms in a crystal.

The picture, obtained from such experiments, shows perfect symmetric patterns, as presented in figure 2, giving identical results, independent from position

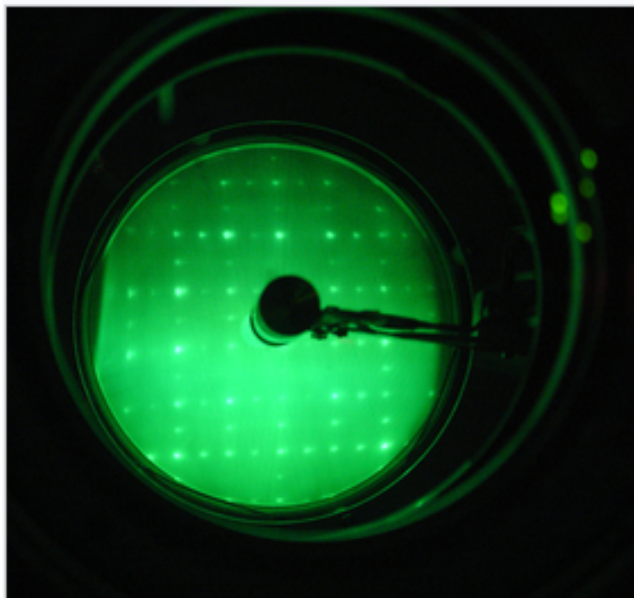


Figure 2: LEED pattern of a SI(100) reconstructed surface[4]. The underlying lattice is a square lattice while the surface reconstruction has a 2x1 periodicity. The electron gun, which generates the primary electron beam, covers up part of the screen.

[4]

(direction) of the experimental apparatus or time of experiment. The electron beams velocity is around $1 \cdot 10^6 \frac{m}{s}$, compared to the earth velocity relative to the Cosmic Microwave Background Radiation, which is around $0.37 \cdot 10^6 \frac{m}{s}$. This means that if we believe that the electrons velocity should be relative to a media (aether), we would expect such pictures to be asymmetric or irregular, but, **this is not the case!?**

3 Thought experiment

Let us imagine a laboratory, having a heavy ion source, making the following experiment. You chose a radioactive ion having a strong β^- decay, and you give it a velocity v_i . You then select the decaying β^- electrons with a velocity v_e (around $1.0 \cdot 10^6$ m/s), in the forward direction. There should also be install a LEED detector along the beam line.

The question to answer is: Which wave length, of the electrons associated wave, will the LEED experiment show? The law of Louis de Broglie must be valid but, in which system of reference?

- In the laboratory system of reference, the LEED detector is in agreement with the law of Louis de Broglie, we obtain

$$\lambda = \frac{h}{v_e} \quad (4)$$

Remember that this is not relativistic, there is no speed close to the light speed, all relativistic modifications can be neglected!

- In the heavy ion's system of reference; the electron's velocity is $v_e - v_i$ and the electrons wave length therefore

$$\lambda = \frac{h}{m(v_e - v_i)} \quad (5)$$

a Doppler shift must here be included, since the LEED crystal moves towards the heavy ion with the velocity v_i . The result would be that the associated wave of the electron seems to be 4 times longer than the expected wavelength in LEED crystal measurement.

Notice that the kinetic energy of the earth, as seen by the heavy ion, becomes

$$E = m \frac{v_i^2}{2} \quad (6)$$

- In the electron's system of reference, we obtain

$$\lambda = 0 \quad (7)$$

i.e. the electron is standing still relative to it self, so no associated wave!

We obtain the kinetic energy of the earth to

$$E = m \frac{v_e^2}{2} \quad (8)$$

Any (non relativistic) observer will agree on the velocity of the electron at which the correct measurement of the distance between the atoms is obtained (extracted from the LEED[5] crystal experiment). But, the reference frame of the laboratory, the heavy ion and the electron can not all be correct! The law of L. de Broglie (1) must be wrong in one or all of the frames!

There are only one solution. The system of the laboratory is correct. This means that the electron obtain its wavelength from the surrounding space in some, not well defined, interaction.

Any laboratory, will measure the same relative velocity. But, then the electron must interact with some sort of media surrounding the earth! We will call this "media" **a neutral potential**.

4 Correction of the special relativity theory

The neutral potential around a mass, must be produced by a correspondong "field" but such a "field" can not have any associated force i.e. this is **not** the gravitational field! The neutral potential must follow the law

$$P = -K \frac{m}{r} \quad (9)$$

where K is a constant and M is the mass whereas r is the distance from the centre of the mass.

We can then write the general equation for the local potential as follows:

$$P_L = -\sum_{i=1}^n K \frac{m_i}{r_i} \quad (10)$$

In case of a laboratory experiment on the Earth, the earth neutral potential is completely dominant, we can therefore neglect other sources and use the reference frame of the laboratory (the earth center is the correct reference frame).

The modifications associated with the special relativity theory can now be explained as a distortion created by the EM-field in the radial force equilibrium between an object and the surrounding media. It must exist a signal from an object to the surrounding media, telling about its existans, while a similar signal will be produce by the surrounding media felt by the object. The difference between these two signal must be the reason for the distortion of the interaction, leading to;

It follows that:

- The relativistic mass is a "true" mass, where any particle absorbs energy (mass) from the field which is accelerating it.
- The interaction between an object and the surrounding media (neutral potential) leads to a delay in the action within the object. This is time delation.
- The before mentioned interaction also lead to a deformation of the object, in the sens of velocity, i.e. the object is "space" contracted.

4.1 The twin paradox

The famous twin paradox can now be easily understood:

Time dilation happens when an object has a speed close to c in the local reference frame. In the case of the travelling twin; his speed is always close to the light speed c , in any local reference frame, since the relative velocity between local reference frames is always low (relative to the light speed).

5 Conclusion

Examining the associated wave of the electron, we show that there is a local reference frame, centred on the earth, i.e., some sort of neutral potential, following the earth in its movement through space. This is the reference system for the electron's associated wave, and therefore for all particles with an associated wave. All masses within the Universe must then have a similar neutral potential.

This neutral potential does not rotate with the earth, as demonstrated with the Michelson–Gale–Pearson experiment[7].

This demonstration shows that A. Einstein's relativity theory is wrong, since one of its main postulates; **all laws of physics are valid in any system of reference**, is wrong according to the above. The formulas for relativistic mass, time dilation and space contraction are correct, but, only within the local neutral potential (media), which gives a reference system, within which everything should be measured.

All masses must have such a neutral potential, extending towards infinity. But, a small mass has a weaker potential so that, for example, an ion at the earth surface has a neglectable potential. The associated wave, of the before mentioned heavy ion, is therefore not developed within the neutral potential of the ion, since this is too weak. The ion's neutral potential is so weak that it's neglectable already at the ion surface, compared to the Earth neutral potential. This must be true for all objects having a mass much smaller than the Earth's potential.

It follows that the Earth's potential is closed in by the Sun's potential, which in its turn is closed in by the Galaxy's potential et c.

This neutral potential is very likely associated with gravitation, which but in question also the general relativity theory of A. Einstein.

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