Research Article

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Assigning Physical Parameters to the Value of PSI

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Abstract

In this paper we discuss the possibility that the wavefunction describes the relation of entropy to the spacetime intervals. In our previous research we have put forth the quantum of action and the quantum of flux. We give a final answer as to what psi is.

Introduction

According to the author's previous paper the transformation of mass to a magnetic monopole is connected with choosing a zero for time axes [1]. In relativity present is of an extended duration. The volume the particle occupies is the present hypersurface in four-dimensional space time. These are also called simultaneity hypersurfaces. Uncertainty is explained by a wave of dilation and rarefaction of the volume itself.

As long as the particle moves every observer measures a different volume for it depending on his point of view as perceived by the solid angle. Once an event takes place the volume shrinks to a point which is the particle we observe and the causality of events is being witnessed by the observer through these solid angles. A location of the particle in spacetime as a singularity gives to the last an identity.

Main Part

Throughout our work we have described cyclic processes [1-23]. The wavefunction is being described as:

$$\psi = a + ib = |\psi| e^{i\phi - i\omega t} \tag{1}$$

As can be realized it describes a circle in the complex plane.

We have deduced the following formulas from our research:

$$\vec{\alpha} = \frac{d\vec{r}}{dt} = \frac{\hbar}{mc}\nabla\phi + \frac{e}{mc}\vec{A} \tag{2}$$

$$\vec{\beta} = \frac{d\vec{F}}{dV} = \frac{\hbar}{Nmc^2}\nabla|\psi|^2 \tag{3}$$

We have also found out that mass is distributed spherically in shells. The resultant vorticity is found to be:

$$\vec{\Omega} = \vec{\alpha} \times \vec{\beta} = \nabla \times \vec{j} \tag{4}$$

Since we agree that the deviation of the vector potential is 0 its integral over a closed surface is zero and the vorticity over a closed surface is transformed into an integral in the complex pane of psi

$$\Phi = \oint \vec{\Omega}\, d\vec{S} = \oint |\psi|^2 d\phi = 4\pi n|\psi|^2 = 4\pi n \frac{dm}{dV} \tag{5}$$

The last identity holds since we are taking the closed integral from right to left and then also from left to right. Since the angle phi is not single valued we have an integer multiple of 4 pi.

Resulting from our research [1-23]. We bring forward the following formula relating the absolute value of the wavefunction with local entropy:

$$d|\psi|^2 = 2|\psi|^2 \frac{dS}{K_B} \tag{6}$$

We further assume that entropy at a point in space is directly related to the spacetime interval of an event taking place. This will explain the asymmetry in the arrow of time:

$$\frac{S}{K_B}(\vec{r}) = K\tau \tag{7}$$

In equation (7) K is the curvature of spacetime caused by the presence of mass and tau is the spacetime length.

That way we have:

$$d|\psi|^2 = K^2|\psi|^2((d\vec{r})^2 - \frac{c^2}{\chi}(dt)^2) \tag{8}$$

In equation (8) chi stands for the dielectric susceptibility which alters the speed of light in the presence of mass as was Einstein s original idea and introduces a new metric. Actually, we have found that the following relationship holds:

$$\chi = \frac{N}{V} \tag{9}$$

Conclusion

The wavefunction was assigned the Greek letter psi because its capital letter as a picture reminds the seize in which the thread of a lifetime of a particle is wound. It is written as:

$$\psi = e^{K\tau + i\phi - i\omega t} \tag{10}$$

The solid angles through which the observer witnesses the present events are derived from the following formula:

$$\Omega = K\tau \tag{11}$$

The curvature of spacetime is constant and is related to the fine structure constant through the following equation:

$$K\frac{\hbar}{mc} = \alpha = K\lambda_c \tag{12}$$

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