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Deriving the Metric of Five-Dimensional Universe

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ABSTRACT: In this short paper which is a continuation of another one published in this very journal regarding magnetic monopoles we discuss the possibility of a fifth dimension explaining some quantum phenomena.

KEYWORDS: quantum mechanics;special relativity; quantum thermodynamics

INTRODUCTION

After many years of research on the hidden variables of quantum mechanics the author has published a lot of papers on minor journals and two on major ones. We are going to give a summary of our work here and expose new and important results supporting the possibility that in order to fully comprehend the philosophy and formalism of quantum physics we need to add a fifth dimension. The reader may go through some of the wide literature existing in the reference section regarding this subject [1-171]]

As we go down to smaller dimensions the volume is changing. In five dimensions we have a ring. This is perceived in four dimensions as the surface of a hypersphere and in three dimension it is the volume of simultaneity in which we measure the probability.

Energy flows from five dimensions known as the qi or chi energy according to tao philosophy

Main part

According to Einstein all energy and mass , as they are equivalent , create curvature in spacetime. We shall calculate this curvature which we are going to name K coming from the Greek word Kiklos, meaning cycle as the inverse of the relativistic radius of the electron:

$$\frac{e^2}{4\pi\varepsilon_0}K = mc^2 \quad (1)$$

The fine structure alpha is given below:

$$\alpha = \frac{e^2}{4\pi\varepsilon_0 \hbar c} \quad (2)$$

These two symbols are connected through the following formula:

$$K = \frac{mc}{\alpha\hbar} \quad (3)$$

The Compton wavelength is:

$$\lambda_c = \frac{h}{mc} \quad (4)$$

Therefore the constant K is given by the following formula:

$$K = \frac{2\pi}{\alpha\lambda_c} \quad (5)$$

So far we have come up with a constant having units inversely proportional to the length and we are going to use it in the calculation of the overall metric of the five dimensional space. We are going to put forward a formula

$$\frac{(d|\psi|)^2}{K^2} = dx^2 + dy^2 + dy^2 - c^2dt^2 + dY^2 \quad (6)$$

Now as we are well aware of the wavefunction psi has real and imaginary terms and is decomposed to the following:

$$\psi = a + ib \quad (7)$$

Combining formulas (6) and (7) we deduce the following equation:

$$\frac{da^2+db^2}{K^2} = dx^2 + dy^2 + dy^2 - c^2dt^2 + dY^2 \quad (8)$$

As we know the probability is proportional to the exponential of the entropy:

$$P = \frac{|\psi|^2}{N} = \frac{e^{S/K_B}}{N} \quad (9)$$

By inserting equation (9) into formula (6) we find:

$\frac{(d|\psi|)^2}{K^2{K_B}^2} = dx^2 + dy^2 + dy^2 - c^2dt^2 + dY^2$ (10)

If we multiply both sides by K squared we are going to have a dimensionless equation and this is a step towards the right direction since the wavefunction is dimensionless itself.

$\frac{|\psi|^2}{{K_B}^2}dS^2 = K^2(dx^2 + dy^2 + dy^2 - c^2dt^2) + K^2dY^2$ (11)

We further simplify equation (12) since we know the symbol for the four dimensional metric:

$\frac{|\psi|^2}{{K_B}^2}dS^2 = K^2ds^2 + K^2dY^2$ (12)

The only left dimensionless quantities the phase of the wavefunction which acts as the fifth coordinate:

$\frac{|\psi|^2}{{K_B}^2}dS^2 = K^2ds^2 + d\phi^2$ (13)

We are finally entitled to give a value for the absolute value of the wavefunction and we depart for this from the fact that spacetime becomes superconducting with a critical temperature Tc:

$|\psi| = \frac{T}{T_C}(\vec{r})$ (14)

Combining equations (13) and (14) we find and using the fact that the cosmic interval is proportional to the solid angle with which the observer observes the events the following formula:

$dQ^2 = (K_BT_C)^2(d\Omega^2 + d\phi^2)$ (15)

CONCLUSIONS

The early Kaluza Klein theory of five dimensions is connected to the appearance of magnetic monopoles as described in our research[1]. Dirac discussed the possibility of existence of magnetic monopoles. Since the fifth dimension is beyond our reach magnetic monopoles do not actually exist in our 3-dimensional universe. What is observed is discontinuities of ordinary spacetime. A point electron is evidently a discontinuity because a point in our universe has zero dimensions.

We hope we have contributed to the field of research in the hidden variables of quantum mechanics and hope that in the future some group of scientists might collaborate on illuminating us further with a book.

Competing Interest declaration

I declare that this is an original work and there are no competing interests

Data avalaibility declaration

More data is in the form of more detailed explanation of quantum formalism in my published papers which I am willing to share but most of them are published in open access journals anyway. No specific data is needed for this journal

Funding declaration

I declare that I have no funding

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