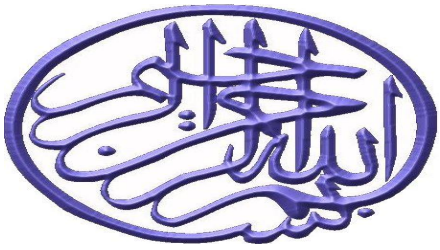

قَالُواْ سُبْحَانَكَ{لاَ عِلْمَ لَنَا إِلاَّ مَا عَلَّمْتَنَا إِنَّكَ أَنتَ الْعَلِيمُ الْحَكِيمُ }

صدق الله العظيم

البقرة الآية 32

Dedication

I dedicate this work to my caring and devoted parents for long years of love , concern , power full and keen guidance . To beloved family – My husband and sons , To friends and colleges .

For enriching my life .

Acknowledgements

I am deeply indepted to my supervisor prof . Mubarak Dirar AbdAlla for his invaluable help and special guidance .

I would like to express may gratitude to department of Physics college of Science. Thanks also extends to Gezira University and education college for financial and moral supports .

5.12 discussion

Anew quantum GSR equation was obtained as shown by equation (5.2.9) unlike Schrodinger it is second orderint and consists of terms representing rest mass energy . This is equation is also unlike relativistic equations it consists of terms standing for potential of any field . This equation (5.2.9) also reduces to Klein – Gordon equation (5.2.10) when the potential vanishes .

It is also very striking to note that time independent new quantum equation (5.3.6)reduces to ordinary time independent Schrodinger equation (5.3.13) when one neglects rest mass energy and when relativistic energy is replaced by Newtonian energy in equation (5.3.11) .

Different expression for this new quantum GSR equations were obtained as shown by equations (5.4.9) , (5.5.6) , (5.6.6) and (5.7.4) .

These equations are different due to the spatial and time dependence of the potential .Using (5.6.6) for time potential , the equation was solved for harmonicOscillator assuming very small displacements , one obtained quantized energy expression (6.7.11) . This expression shows that the rest mass m_o is quantized .It is very interesting to note that according to equation (6.7.11) , by adjusting the quantum number n and frequency ω , one can predict the mass of any elementary particle which can be considered as a vibrating string .

Another approach based on the full quantum equation (5.6.2) and time independent potential predicts a travelling wave solution for harmonic Oscillator in equation (5.9.2). Thus this equation can describe a photon .According to equations (5.9.14) and (5.9.15)

$$\mathbf{m_o c^2} = n_2 \hbar \omega \sqrt{2}$$

Again the mass is quantized and can predict any elementary particle mass

Asecond new quantum GSR equation basedon an alternative GSR energy expression (5.10.5) was obtained . This new equation is shown in equation (5.10.10) .

When solving it for super conductors its predicts Josephson effect by using simple mathematics as in equation (5.11.26) .

Contents

Chapter 1 : Quantum History

Chapter 2 : Quantum Equation

Chapter 3 : Generalized Special Relativity

Chapter 4 :Literature Review

Chapter 5 : Quantum Generalized Special Relativistic Equation

Abstract

Using the dual nature of atomic and subatomic particles beside generalized special relativistic equation, two new quantum equations were obtained. The first one reduces to ordinary time independent Schrodinger equation and Klein-Gordon equation.

This new equation for harmonic Oscillator, shows many interesting properties. It shows that both energy and rest mass are quantized. Thus one can predicts the mass of any elementary particle by adjusting the quantum number and frequency. It also predicts wave solutions, thus it can describe the photon behavior. By predicting mass quantization it confirms string theory. The second equation describes Josephson effect by using simple mathematics. The frequency is potential dependent similar to conventional one.

المستخلص

بإستخدام الطبيعة المزدوجةللجسميات الذرية ودون الذرية بجانب معادلة النسبية الخاصة المعممة تم الحصول على معادلتين جديدتين في ميكانيكا الكم . المعادلة الأولى تؤول لمعادلة شرودنجر المستقلة عن الزمن وكذلك معادلة كلاين و جوردن.

عندما طبقت هذه المعادلات على الهزاز التوافقي أظهرت خصائص جديرة بالاهتمام. حيث أوضحت ان الطاقة و الكتلة مكممتان. لذا يمكن التنبؤ بكتلة أي جسيم أولي بضبط العدد الكمي والتردد. وهي ايضا تتنبأ بحلول تصف موجة جارية لذا فهي يمكنها وصف سلوك الفوتون . ولأنها تنبأت بتكمية الكتلة فإن هذا يعزز نظرية الأوتار. أما المعادلة الكمية الثانية فيمكنها وصف أثر جوزيفسن عن طريق عن طريق الرياضيات المبسطة. قد تنبأت هذه المعادلة بصيغة للتردد تعتمد على الجهد وهي شبيهة بالصيغة المعروفة.

5.13 Conclusion :

The new quantum GSR equation is more general than Schrodinger and relativistic equations .

Since it reduces to time independent Schrodinger equation and to Klein – Gordon equation .

It can also describe photon behavior as for as it predict travelling wave solution .
it also predict Josephson equation by using simple mathematics .

5.14 Recommendation :

1 .It is essential to extend this equation to be reducable to time dependent Schrodinger equation and Dirac equation .

2 .This equation should be applied to describe super conducting materials at high temperature .

3 .The photon equation need to be used to describe interaction of electromagnetic radiation with matter .

4 . This equation can be applied to describe elementary particles interactions .

5.14 Recommendation :

1 .It is essential to extend this equation to be reducable to time dependent Schrodinger equation and Dirac equation .

2 .This equation should be applied to describe super conducting materials at high temperature .

3 .The photon equation need to be used to describe interaction of electromagnetic radiation with matter .

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Chapteriv

Chapterv