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Magnetic Solution

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Abstract

While deriving the magnetic energy solution an explanation of mass and an explanation of charge were found. Also a reason for failure to find a magnetic monopole was given.

It was found that all known particles can be accounted for by calculating the mass using a formula given in this solution. Also many new particles were found. The spherical harmonics were generated giving the known orbitals. Spin was proposed to be a magnetic dipole.

The mass of the electron was found to be related to the fine structure constant by 13.6*2*137*137=510,516.8ev where 511Kev is accepted. The reason that the electron does not enter the nucleus was found.

Keywords

Quantum Physics; Energy States; Hilbert Space; Multibody Solution; Magnetic Dipole; Electron Mass.

Academic Discipline

Physics

Subject Classification

Quantum Mechanics

Approach

Theoretical

Introduction

During a class in electrodynamics the Magnetic monopole was discussed. The existence of a magnetic monopole would make electrodynamics more uniform. There was discussion of the spin and possibility of a magnetic dipole in each fermion. Unfortunately it is well known that the electron is a point particle for theoretical reasons. The magnetic field of an electron and a proton generates an ambient magnetic field through which all particles move. One apparent observation is that all particles are in motion so that the spin might create the charge of fermions. The next logical step is to posit a magnetic dipole in all fermions. Needed is a reason why magnetic monopoles have not been found even with tera electron volts of energy smashing particles and generating many resultant particles speeding away from the point of collision. It may be that the assumption that an electron is a point particle is unneeded. Perhaps some new physics can be explored with a logical derivation with these thoughts in mind.

Derivation

In order to solve the energy states of the spherical harmonic wave functions we make the following assumptions:

1. assume magnetic dipoles of radius rij

2. assume the equivalent reduced Schroedinger equation is valid for N=n(n-1)/2 poles.

3. assume rij independent

4. assume the equivalent n-body solution holds [1].

Heretofore we have dealt with only the quantum number n.

This implies an energy of Eij=-13.6/mij^2 for each dipole. Eij is in ev.

Two fixed dipoles r12 and r34 generate 6 interactions:

E=13.6(-1/m12^2 + 1/m13^2 + -1/m14^2 + -1/m23^2 + 1/m24^2 + -1/m34^2)

The 12 dipole might represent the orbital magnetic field and the 34 dipole might represent the electron spin in a hydrogen atom. Holding r12 and r34 fixed we have:

dE=dE13-dE14-dE23+dE24,

if r34<<1 then

dE=-13.6(1/r13 - 1/(r13+e1) -1/r23 + 1/(r23+e2)) = e(E13^2-E23^2)/13.6

where e=e1=e2<<1

As r34-->0, r34> 1F. We may take e=r34. Thus E34 is some mass/energy of the electron[1][3][4][5]. The obvious choice is the mass of the electron. Solving for e noting the factor of one half for the reduced mass: V=2*510590/2=13.6*2*137^2 with relativistic correction 2 we obtain from V=2*13.6/r r=e=(1/137)^2, i.e. r=5*10^(-15)m. This is a derivation of the fine structure constant because dE=e(E13^2-E23^2)/13.6 can be shown to be the spin orbit correction with m13 = n, dm13 = m, dm23 = l, dE34(up or down) = spin correction. For n=2 there are six orbitals with dE not=0 and two 2S orbitals in conformity with current theory. Note the diagram used below:

R1.....R3

R2.....R4

Results

The mass of the electron has been derived while solving the energy states of the spherical harmonic wave functions. The orbitals have been found for the first 18 atoms. Since r=n^2/Z and E=13.6/r the more energy applied to the mass the shorter the dipole and more energy is absorbed as mass so that a single magnetic pole cannot be obtained. This resulted in the failure of the search for the magnetic monopole. Since the magnetic dipole moves in an ambient magnetic field from other particles, it creates charge.

Charge is found to be plus or minus one by the Hilbert Space group theoretical derivation: Dqq/n^2 with the energy constant. Dq^2=DE=0 qq'+q'q=0 2qq'=0 Integrating q^2=c so q=+/-c one value of c is 1 so q=+/-1.

Also we have a replacement for the weak force because the dipoles explain all masses of known particles and predict more particles. The quantum number 1/n is found in the hydrogen wave function solution by replacing n as the integer quantum number with 1/n where n is an integer. This limits the solutions to the S orbitals explaining why the electron does not enter the nucleus. It goes around the nucleus on an S orbital with energy equal to the energy of the electron. Thus the weak force energies are given by -13.6n^2.

For the electron as above the mass is 13.6*2*137*137=510,516.8ev which is very near the accepted 511Kev value. For the proton the mass is 0.5105168Mev*137*137*100=958.188982Mev which is near the accepted value of 938Mev. 100 is the conversion from cm to m for the speed of light.

958Mev/n^2 gives muons = 239Mev, 106Mev, 60Mev and so on giving more particles than have been measured. 0.958Gev*n^2 gives particles with a charge of one=3.8Gev, 8.6Gev, 15.3Gev, 23.9Gev, 34.4Gev, 46.9Gev, 61.3Gev, 77.5Gev, 95.8Gev and so on again giving more particles than have been measured. All of the known particles can be calculated.

3.8Gev(2/3)=2.5(charm 1.5Gev) 15.3Gev(1/3)=5.1(bottom 4.7) 46.9Gev*2=93.8(91.2 Z boson) 0.958(7*7+6*6)=81Gev(80.2 W boson) 245Gev (2/3) = 163(Top Quark 175Gev)

Of interest is a composite particle 0.958(9*9+7*7)=124.5Gev. Is this the Higgs Boson with one particle of charge one and the other particle of charge minus one? In comparing these particles with quarks an adjustment in mass must be made by dividing the quark mass by the fractional charge to maintain the proper charge to mass ratio as measured by the curve in the detector magnetic field.

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James W Goodman biography

Over 50 hours of graduate physics and math courses.

BS physics

Followed the solution of the hydrogen Schroedinger equation.

Solved the hydrogen equation using group theory.

Studied Hilbert Space and QM group theory.

Graded Hilbert Space group theory theorems.

89 percentile physics GRE

Member of Mensa

1971 The design of this digital cell phone is proprietary information for the Bell System.

1972 The Schoedinger equation was studied with the idea of writing down the potential energy between each pair of particles and adding them up.

1972 Two new assumptions were written down and from this the Schoedinger equation was solved. The electron electron interaction was solved exactly. The ground state energy of the first 10 elements was found exactly correct. New physics was found for the rest of the elements. The nuclear spin had been omitted.

1979 Bell needed a power forecasting and record keeping system. The secret was to use an exponential growth curve fitted to the three high values of the amperage. The statistical theory says that more users cause more mips cause more amps.

1980's described the DSL to Bell and asked them to provide for students to hook up to the Internet. At that time the high-speed available was 2400 bits per second. DSL provided 1 million bits per second.

1980's from study of the Aluminum gallium arsenide laser showed Cox cable how to turn around the repeaters. It shows that with the voltage below lasing the laser is a receiver.

1980's from study of calculus of statistics and study of traffic engineering with the Bell System pointed out the problem with too many users on one T1 Line. At high usage after supper 10 users on one T-1 line would get about 100,000 bits per second. This increased the demand for DSL's.

1990's Suggested from a sawf study to Lockheed Martin the alloy LiAl for the skin of the shuttle tank. They used the Super Lightweight Tank for years. Each pound saved would put a pound added to the load intoorbit.

2013 most reactions go through many energy states. Each difference in energy state represents gain or loss of a photon. The highest gain is the activation energy. The sum of the losses is the heat of formation. The greatest loss is the bond strength.