Gravity

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Abstract

Considering two balls of Z protons each near each other the residual electric potential V is calculated. Also the gravitational potential is calculated. The Gravitational constant is the same for both. Thus the electric field creates gravity. This calculation is possible because the multibody energy states are known exactly. The relativistic correction of 2 has been found from the Klein-Gordon Equation solution. This finding is an important step in reducing known forces to one field. Recall the electric field is generated by motion in the magnetic field of atoms of a magnetic dipole. The mass is a function of the length of the magnetic dipole.

Keywords

Quantum Physics Energy States Hilbert Space Multibody Solution Electric Field Gravity

Academic Discipline

Physics

Subject Classification

Quantum Mechanics

Approach

Theoretical

Introduction

No new assumptions are required beyond reference [1]. The gravitational constant was measured by the potential between two iron balls of 1kg mass a few cm apart in the classic experiment recorded in many text books. The gravitational constant is calculated here with the potential energy between two masses of Z protons each and compared to the electric potential between the same masses. No element is specified nor is any shape specified. Separation is taken to be on the order of cm. The generality of the calculation supports the conclusion that the electric field generates the potential of gravity[5][6]. The conclusion of reference [1] is needed in order to make this calculation.

Derivation

From [1] $V=-13.6(2)ZZ/n^2$

for n,l,Z large

$V=2Z(Z,....,Z)+2Z(Z,....,Z)-(2Z(Z,...,Z,...)+2Z(Z,...,Z,...)=$

$-13.6(2)\{[(a)ZZ^2/1^2+(b)ZZ^2/n^2-(c)Z(Z-1)Z/1^2-(d)Z(Z-1)Z/2n^2-(e)ZZZ/n^2]$

$\quad +[(a)ZZ^2/1^2+(b)ZZ^2/n^2-(c)Z(Z-1)Z/1^2-(d)Z(Z-1)Z/2n^2-(f)ZZZ/n^2]\}$

$+13.6(2)\{[(a)ZZ^2/1^2+(b)ZZ^2/l^2-(c)Z(Z-1)Z/1^2-(d)Z(Z-1)Z/2l^2-(e)ZZZ/l^2]$

$\quad +[(a)ZZ^2/1^2+(b)ZZ^2/l^2-(c)Z(Z-1)Z/1^2-(d)Z(Z-1)Z/2l^2-(f)ZZZ/l^2]\}$

So for Newtonian gravity:

$V=-GMM/r=-GZZ\{(1836*1836)(2*2)/1.6*10^{-12}\}\{1/r - 1/r'\}\{10^{-8}\}$

$\quad =-ZZ\{6.67*10^{-8}\}\{8.427*10^{10}\}Z\{1/n^2 - 1/l^2\}$

$\quad =-13.6(2)ZZZ\{200\}\{1.0332\}\{1/n^2 - 1/l^2\}$

The factor of 200 is the units factor for C going from mks to cgs (100) and the relativistic factor of 2[4].

For the Electric field above:

the (e) term is duplicated by the (f) term, so we set f=0

The (a) terms add to zero, so we set a=0.

The (c) and (d) terms do not cause an attraction nor repulsion.(Intraorbital forces only)

So set c=0 and d=0. The remaining terms are the b and e terms. Set b=1 and e=1

V=-13.6(2)ZZZ{1/n^2 - 1/l^2}

Results

The electric potential with Z equal to the number of protons in a body of mass 1 Kg near a mass of 1 Kg has been evaluated to produce the gravity potential. The gravitational constant is calculated to within 3.3% error. The relativistic factor of 2[4] is needed as well as the Multibody Energy States[1] solution. The Magnetic Solution shows how the electric charge can be produced by a magnetic dipole moving in the magnetic field of other atoms. At this point three of the four forces of nature can be explained by magnetic dipoles: the electric force, the magnetic force and the gravitational force. It is noted that the strongest potential is between the nucleus and the electron in atoms so that the potential between the antiproton in antimatter and the electron in matter and the positron in antimatter and the proton in matter are the strongest possibly resulting in repulsion between matter and antimatter.

References

1. Journal of Advances in Physics Vol 12 No 4 page 4405 Multibody Energy States

   https://cirworld.com/index.php/jap/article/view/5965/5510

2. Handbook of Chemistry and Physics 2006-2007

3. Journal of Advances in Physics Vol 12 No 4 page 4495 Magnetic Solution

   https://cirworld.com/index.php/jap/article/view/download/6242/5725

4. Journal of Advances in Physics Vol 13 No 2 The Klein-Gordon Equation

5. Edward Witten Nuclear Physics B. 186(3):412-428 Search for a Realistic Kaluza-Klein Theory 1981

6. J.M. Overduin, P.S. Wesson Physics Reports 283(5)303-378 Kaluza-Klein Gravity 1997

Author's Biography

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 in orbit.

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.