

# BOOK TWO: RIGHTEOUSNESS!

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John 16:9-11

King James Version

8 And when he is come, he will reprove the world of sin, and of righteousness, and of judgment:

9 Of sin, because they believe not on me;

10 Of righteousness, because I go to my Father, and ye see me no more;

11 Of judgment, because the prince of this world is judged.

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**'OF RIGHTEOUSNESS,  
BECAUSE I GO TO MY FATHER,  
AND YE SEE ME NO MORE.'**

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Revelation 5:1-7

King James Version

5 And I saw in the right hand of him that sat on the throne a book written within and on the backside, sealed with seven seals.

2 And I saw a strong angel proclaiming with a loud voice, Who is worthy to open the book, and to loose the seals thereof?

3 And no man in heaven, nor in earth, neither under the earth, was able to open the book, neither to look thereon.

4 And I wept much, because no man was found worthy to open and to read the book, neither to look thereon.

5 And one of the elders saith unto me, Weep not: behold, the Lion of the tribe of Judah, the Root of David, hath prevailed to open the book, and to loose the seven seals thereof.

6 And I beheld, and, lo, in the midst of the throne and of the four beasts, and in the midst of the elders, stood a Lamb as it had been slain, having seven horns and seven eyes, which are the seven Spirits of God sent forth into all the earth.

7 And he came and took the book out of the right hand of him that sat upon the throne.

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THE LAMB WILL REVEAL THE TRUTH THAT COMES FROM GOD!

# The Millennium Problems: The Seven Greatest Unsolved Mathematical Puzzles of Our Time

[Reviewed by David Roberts, on 02/7/2003]

In May 2000, the Clay Mathematics Institute elevated seven long-standing open problems in mathematics to the status of "Millennium Prize Problems," endowing each with a million-dollar prize. The seven particular problems were chosen in part because of their difficulty, but even more so because of their central importance to modern mathematics. The problems and the corresponding general areas of mathematics are as follows.

<b>1</b>	<b>The Riemann Hypothesis</b>	<b>Number Theory</b>
<b>2</b>	<b>Yang-Mills Existence and Mass Gap</b>	<b>Mathematical Physics</b>
<b>3</b>	<b>The P versus NP problem</b>	<b>Computer Science</b>
<b>4</b>	<b>Navier-Stokes Existence and Smoothness</b>	<b>Mathematical Physics</b>
<b>5</b>	<b>The Poincaré Conjecture</b>	<b>Topology</b>
<b>6</b>	<b>The Birch and Swinnerton-Dyer Conjecture</b>	<b>Number Theory</b>
<b>7</b>	<b>The Hodge Conjecture</b>	<b>Algebraic Geometry</b>

The Navier-Stokes equations were first written down in the early 1820's, Riemann made his hypothesis in an 1859 paper, and the Poincaré conjecture dates from 1904. The remaining problems arose in the period 1950-1971.

In *The Millennium Problems*, Keith Devlin aims to communicate the essence of these seven problems to a broad readership. It is, of course, a very ambitious goal. The preface makes it clear what Devlin's ground rules are. First he assumes only "a good high school knowledge of mathematics." Second, he is writing "not for those who want to tackle one of the problems, but for readers — mathematician and non-mathematician alike — who are curious about the current state at the frontiers of humankind's oldest body of scientific knowledge." He is clear that the readership drives the level of the book, so that precise statements of the problems will not always be given. Rather the goal is "to provide the background to each problem, to describe how it arose, explain what makes it particularly difficult, and give... some sense of why mathematicians regard it as important."

After the short preface, the book has an interesting Chapter 0, and then one chapter for each problem in the above order. These seven chapters are constructed similarly. Most have a long historical component, generally including biographical information about the person or persons after whom the conjecture is named. Each has substantial background mathematical information, with topics ranging from complex numbers in Chapter 1 and group theory in Chapter 2 to congruences in Chapter 6 and algebraic varieties in Chapter 7. Applications are emphasized when possible. A nice theme in Chapters 2 and 4 is that mathematicians are behind physicists and engineers and just trying to catch up. Each chapter concludes with a discussion of the millennium problem itself.

Chapter 5 illustrates how Devlin ties the various units of a chapter into a coherent narrative. It begins with four pages about the life and work of Henri Poincaré. It moves on to introduce "rubber sheet geometry" in terms of how subway maps and refrigerator wiring diagrams are not geometrically faithful to the physical objects they represent, but nonetheless clearly capture all relevant information. This unit is important as it will make readers feel that topology is natural, rather than weird. Chapter 5 next introduces the concepts of vertices, edges, faces and finally Euler characteristic in terms of the Königsberg bridge problem. It introduces non-orientable surfaces and makes the introduction of an ambient four-space seem natural, since it is necessary for an embedding of the Klein bottle. It topologically classifies closed surfaces first crudely in terms of their orientability, and then completely in terms of networks drawn upon them and the Euler characteristic of these networks. It gives a very attractive example of two seemingly linked rings that in fact can be pulled apart. This example shows the reader that not everything is geometrically obvious, and thus underscores the utility of algebraic invariants that can rigorously confirm that two objects are topologically different. It discusses how the ordinary two-sphere is characterized among all closed surfaces by having the property that any loop on it can be shrunk continuously to a point. Finally, by way of this two-dimensional analogy, it discusses the actual three-dimensional Poincaré conjecture.

The strain imposed by the challenge of communicating all seven millennium problems to a broad readership naturally shows at times. In the Navier-Stokes chapter, for example, the background mathematical information presented is calculus and specifically differentiation. Readers are instructed that "dy/dx" is to be read "dee-wye by dee-ex." Some seven pages later, the Navier-Stokes equations themselves are presented. They are four coupled non-linear partial differential equations in four independent variables. The exposition is gentle, but readers new to calculus will only understand at a superficial level. The strain is felt somewhat more in Chapter 6 and particularly so in Chapter 7. But these various strains are unavoidable, and I think in general Devlin has done a very good job giving general readers a feel for the seven millennium problems.

# 01. THE FIRST SEAL: A UNIFIED FIELD EQUATION

IN THE BEGINNING, THERE WAS VOID; AND THE VOID WAS ANTI-ENERGY. ANTI-ENERGY IS THE OPPOSITE OF ENERGY; FOR ENERGY IS MOTION; TRANSLATIONAL AND ROTATIONAL MOTION. THEREFORE, ANTI-ENERGY IS THE ABSENCE OF MOTION; IT IS MATTER THAT NEVER CHANGES IN ANY WAY. THE VOID IS THE ULTIMATE IMMOVABLE OBJECT; AND IT IS INFINITE, WITHOUT BOUNDARY OR LIMITATION.

ANTI-ENERGY IS COMPOSED OF JUST ONE TYPE OF PARTICLE: THE NEUTRINO.

THE NEUTRINO IS THE FIRST AND MOST FUNDAMENTAL PARTICLE. IT IS THE ONLY COMPONENT OF THE VOID'S ANTI-ENERGY. WITHIN THE CONFINES OF THE VOID, IT IS MOTIONLESS.

THEN GOD SAID 'LET THERE BE LIGHT.' AND THERE WAS LIGHT.

GOD STRETCHED OUT HIS MIGHTY HAND; INTO THE DARKNESS OF THE VOID, AND TOUCHED IT; THUS TRANSFERRING SOME OF HIS ESSENCE INTO A PART OF THE LIMITLESS VOID. GOD'S ENERGY IS PURE ENERGY; IT IS HIS ESSENTIAL SPIRITUAL ENERGY, AN UNSTOPPABLE FORCE. AT THE VERY MOMENT THAT GOD COMBINED HIS UNSTOPPABLE SPIRITUAL ENERGY WITH THE IMMOVABLE OBJECT OF THE VOID, THE UNIVERSE WAS BORN.

AND THERE WAS LIGHT!

A GREAT HOLE WAS CARVED OUT OF THE VOID IN A MIGHTY EXPLOSION.

GOD'S ESSENCE COMBINES WITH THE VOID'S MATTER TO CREATE:

1. MATTER
2. ENERGY
3. SPACE
4. TIME

'MATTER' IS DIFFERENT FROM 'VOID MATTER' BECAUSE THE NEUTRINOS THAT COMPOSE 'VOID MATTER' ARE NOT FREE TO MOVE AROUND. NORMAL MATTER HAS FREEDOM WITHIN SPACE TO MOVE.

UNCOUNTABLE NUMBERS OF NEUTRINOS WERE FREED FROM THEIR PRISON OF STATIC IMMOBILITY. THE NEUTRINOS WERE NOW FREE TO MOVE, TO SPIN AND TO TRANSFORM THEMSELVES INTO THE ONLY OTHER FUNDAMENTAL PARTICLES IN THIS UNIVERSE: THE PHOTONS.

THE 'PHOTON' WAS ORIGINALLY CALLED A 'QUANTA'; WHICH BASICALLY MEANS 'DISCRETE PARTICLE'. SO THE 'QUANTUM' IN 'QUANTUM PHYSICS' ACTUALLY STANDS FOR 'PHOTON' OR 'PHOTON PHYSICS'. THERE ARE ONLY THREE FUNDAMENTAL PARTICLES:

1. NEUTRINOS
2. P-STRING PHOTONS WHICH HAVE A POSITIVE ELECTRICAL CHARGE.
3. N-STRING PHOTONS WHICH HAVE A NEGATIVE ELECTRICAL CHARGE.

THESE THREE PARTICLES CANNOT BE BROKEN DOWN INTO SMALLER PARTICLES.

THESE THREE PARTICLES TOGETHER, ARE THE FUNDAMENTAL BUILDING BLOCKS OF ALL OTHER PARTICLES:

1. ELECTRONS
2. QUARKS
3. PROTONS
4. NEUTRONS

THEY ARE ALSO THE CAUSE OF THE FOUR FUNDAMENTAL FORCES:

1. ELECTRICITY
2. MAGNETISM
3. ELECTROMAGNETISM
4. GRAVITY

HOW IS THIS POSSIBLE?

BECAUSE THE NEUTRINO IS A DUAL PARTICLE!

THE NEUTRINO IS COMPOSED OF HALF P-STRING AND HALF N-STRING. THIS MAKES EVERYTHING ELSE POSSIBLE.

## DYNAMISM'S 'QUANTUM' MODEL

THERE IS ACTUALLY ONLY ONE FUNDAMENTAL FORCE:

### 1. ELECTRICITY

THE P-STRING'S EXERT A POSITIVE ELECTRICAL FORCE.

THE N-STRING'S EXERT A NEGATIVE ELECTRICAL FORCE.

EVERY NEUTRINO EXERTS BOTH A POSITIVE ELECTRICAL FORCE FROM ITS P-STRING SIDE, AND A NEGATIVE ELECTRICAL FORCE FROM ITS N-STRING SIDE. HOWEVER, THE POSITIVE AND NEGATIVE ELECTRICAL CHARGES CANCEL EACH OTHER OUT LEAVING THE NEUTRINO WITH AN OVERALL NEUTRAL CHARGE.

WHEN TWO NEUTRINOS COME INTO CONTACT, THE RESULT IS A P-STRING AND AN N-STRING PHOTON.

EACH OF THE TWO NEUTRINOS HAS A P-STRING HALF. THE TWO P-STRING HALVES WILL COMBINE TOGETHER TO FORM ONE WHOLE P-STRING PHOTON.

EACH OF THE TWO NEUTRINOS HAS AN N-STRING HALF. THE TWO N-STRING HALVES WILL COMBINE TOGETHER TO FORM ONE WHOLE N-STRING PHOTON.

NEUTRINOS CANNOT BE CREATED NOR DESTROYED; NEUTRINOS CAN ONLY BE TRANSFORMED INTO P-STRING AND N-STRING PHOTONS.

## 'LIGHT RAYS' ARE BOTH A PARTICLE AND A WAVE

WHEN PHOTONS TRAVEL THROUGH SPACE, THEY ALWAYS MOVE AT THE SPEED OF LIGHT BECAUSE THE ELECTRICAL FORCE ALWAYS TRAVELS AT THE SPEED OF LIGHT.

THE MAGNETIC FORCE IS DERIVED FROM MOVING ELECTRICAL CHARGES. SO WHENEVER AN ELECTRICALLY CHARGED OBJECT IS IN MOTION, IT ALWAYS GENERATES A MAGNETIC FIELD. MAGNETIC FIELDS ALSO 'PROPAGATE' (TRAVEL) AT THE SPEED OF LIGHT.

THE TRANSLATING PHOTON IS AN ELECTRICALLY CHARGED OBJECT THAT WILL TRAVEL AT THE SPEED OF LIGHT; WHICH NECESSARILY GENERATES A MAGNETIC FIELD. THIS MEANS THAT THE PHOTON WILL AUTOMATICALLY BE AN ELECTROMAGNETIC OBJECT WHEN IT TRAVELS THROUGH SPACE.

BUT ELECTROMAGNETIC WAVES WHICH ARE GENERATED BY PHOTONS ARE NEUTRALLY CHARGED.

' THIS IS BECAUSE LIGHT RAYS ARE COMPOSED OF BOTH P-STRING AND N-STRING PHOTONS. THE POSITIVE CHARGES OF ALL THE P-STRING PHOTONS WILL CANCEL OUT THE NEGATIVE CHARGES OF ALL THE N-STRING PHOTONS.

THE TYPICAL SOURCE OF A LIGHT RAY IS A GROUP OF NEUTRINOS THAT HAVE BEEN AGITATED SOMEHOW INTO COLLECTIVE TRANSLATIONAL MOTION IN A SINGLE DIRECTION. THIS TYPE OF GROUP ACTION WILL CAUSE THE NEUTRINOS TO 'PAIR UP' AND EACH 'PAIR' TRANSFORMS INTO A P-STRING AND AN N-STRING PHOTON. THE LIGHT RAY IS COMPOSED OF MANY SUCH PAIRS ALTERNATING P-STRING, N-STRING, P-STRING, N-STRING, ... , AND SO ON; AND THIS STREAM OF PHOTON PARTICLES HAS AN OVERALL NEUTRAL CHARGE.

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### Is It a Wave or a Particle? It's Both, Sort Of.

By Paul Sutter published September 30, 2019

*Light behaves as both particles and waves at the same time, and scientists have been able to observe this duality in action using an ultrafast electron microscope. The wave nature is demonstrated in the wavy upper portion, while the particle behavior is revealed below, in the outlines showing energy quantization. (Image credit: Fabrizio Carbone/EPFL)*

Paul M. Sutter is an astrophysicist at The Ohio State University, host of Ask a Spaceman and Space Radio, and author of "Your Place in the Universe." Sutter contributed this article to Space.com's Expert Voices: Op-Ed & Insights.

Is it a wave, or is it a particle? This seems like a very simple question. Waves are very distinct phenomena in our universe, as are particles. And we have different sets of mathematics to describe each of them. So, if we want to go about describing the entire universe, this appears to be a very handy classification scheme — except when it isn't. And it isn't in one of the most important aspects of our universe: the subatomic world.

When it comes to things like photons and electrons, the answer to the question "Do they behave like waves or particles?" is ... yes.

<https://www.space.com/wave-or-particle-ask-a-spaceman.html>

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ELECTROMAGNETIC RAYS ARE A STREAM OF PARTICLES (P-STRING, N-STRING, P-STRING, N-STRING, ...) WHICH ALTERNATE BETWEEN POSITIVE CHARGES AND NEGATIVE CHARGES FOR THE ENTIRE LENGTH OF THE RAY. BUT WHAT GIVES IT 'WAVE-LIKE' ATTRIBUTES IS THAT EACH PARTICLE MOVES IN A HELICAL MOTION THROUGH THREE-DIMENSIONAL SPACE MUCH LIKE A COIL WRAPPED AROUND A ROD. THE 'ROD' IS INVISIBLE BUT THE COIL IS PECULIAR BECAUSE POSITIVE CHARGE 'COIL' AROUND THE ROD IN ONE DIRECTION, WHILE NEGATIVE CHARGES 'COIL' AROUND THE ROD IN THE OTHER DIRECTION; AND REMEMBER POSITIVE AND NEGATIVE CHARGES ALTERNATE WITHIN THE LIGHT RAY.

NOTE THAT ANY SYMMETRICAL COIL WILL LOOK LIKE A SINE WAVE WHEN VIEWED FROM THE RIGHT ANGLE.

THE HIGHER THE FREQUENCY OF THE RAY, THE MORE PHOTONS ARE STREAMING WITHIN IT. THUS HIGH FREQUENCY GAMMA RAYS HAVE A GREAT MANY POSITIVELY CHARGED PHOTONS AND ALSO A GREAT MANY NEGATIVELY CHARGED PHOTONS. EACH PHOTON HAS SOME MASS, AS I WILL EXPLAIN LATER. THE COLLECTIVE MASSES OF ALL THE P-STRING PHOTONS WILL SUM UP TO THE MASS OF THE POSITRON WHICH IS POSITIVELY CHARGED. THE COLLECTIVE MASSES OF ALL THE N-STRING PHOTONS WILL SUM UP TO THE MASS OF THE ELECTRON WHICH IS NEGATIVELY CHARGED.

WHEN A HIGH FREQUENCY GAMMA RAY HAPPENS TO COLLIDE WITH A DENSE ATOMIC NUCLEUS, THE RAY WILL STOP; AND ITS P-STRING COMPONENTS WILL GATHER TOGETHER TO FORM A POSITIVELY CHARGED POSITRON, WHILE ITS N-STRING COMPONENTS WILL GATHER TOGETHER TO FORM A NEGATIVELY CHARGED ELECTRON.

THIS IS HOW POSITRON-ELECTRON PAIRS ARE FORMED.

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## pair production

physics

**pair production**, in physics, the production of a particle-antiparticle pair from the decay of a neutral particle or from a pulse of electromagnetic energy traveling through matter, usually in the vicinity of an atomic nucleus. The most commonly observed pair-production process is the materialization of an electron and a positron from a high-energy photon. In this case, pair production is a direct conversion of radiant energy to matter. It is one of the principal ways in which high-energy gamma rays are absorbed in matter. For electron-positron pair production to occur, the electromagnetic energy, in a discrete quantity called a photon, must be at least equivalent to the mass of two electrons. (The electron and positron have the same mass; being antiparticles of each other, they differ only in their charge.)

<https://www.britannica.com/science/pair-production>

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THE REVERSE OF THE PROCESS IS CALLED 'PAIR ANNIHILATION' AND OCCURS WHEN AN ELECTRON AND A POSITRON COME INTO CONTACT, AND THE RESULTING DESTRUCTION OF BOTH PARTICLES PRODUCES P-STRING AND N-STRING PHOTONS WHICH WILL FLY OFF IN ALL DIRECTIONS AS ELECTROMAGNETIC RAYS.

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## annihilation

physics

**annihilation**, in physics, reaction in which a particle and its antiparticle collide and disappear, releasing energy. The most common annihilation on Earth occurs between an electron and its antiparticle, a positron.

<https://www.britannica.com/science/annihilation>

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AT MUCH LOWER FREQUENCIES, AN ELECTROMAGNETIC RAY MAY COLLIDE WITH A PARTICLE AND DROP OUT OF THE SPEED OF LIGHT. WHEN THIS HAPPENS EACH PHOTON 'PAIR' WHICH COMPOSE THE LIGHT RAY; P-STRING, N-STRING, P-STRING, N-STRING, ... , AND SO ON; WILL RECOMBINE TO REFORM THE TWO ORIGINAL NEUTRINOS.

THIS COMPLETES THE CYCLE OF:

NEUTRINOS --> P-STRING AND N-STRING PHOTONS --> POSITRON/ELECTRON PAIR --> P-STRING AND N-STRING PHOTONS --> NEUTRINOS

POSITRONS AND ELECTRONS ARE DECOMPOSABLE INTO P-STRING PHOTONS AND N-STRING PHOTONS AND ARE THEREFORE NOT FUNDAMENTAL PARTICLES.

## The Atom Builder Guide to Elementary Particles

Atoms are constructed of two types of elementary particles: electrons and quarks.

Electrons occupy a space that surrounds an atom's nucleus. Each electron has an electrical charge of -1.

Quarks make up protons and neutrons, which, in turn, make up an atom's nucleus. Each proton and each neutron contains three quarks.

A quark is a fast-moving point of energy. There are several varieties of quarks. Protons and neutrons are composed of two types: up quarks and down quarks.

Each up quark has a charge of  $+2/3$ .

Each down quark has a charge of  $-1/3$ .

The sum of the charges of quarks that make up a nuclear particle determines its electrical charge.

Protons contain two up quarks and one down quark.

$$+2/3 + 2/3 - 1/3 = +1$$

Neutrons contain one up quark and two down quarks.

$$+2/3 - 1/3 - 1/3 = 0$$

<https://www.pbs.org/wgbh/aso/tryit/atom/elempartp.html>

CONTRARY TO THE ABOVE THERE ARE NOT TWO TYPES OF QUARK BUT ONLY ONE TYPE:

1. UPQUARK:  $+2/3$  CHARGE

BOTH THE PROTON AND THE NEUTRON HAVE THREE UPQUARKS. THE DIFFERENCE IS THAT THEY BOTH ALSO CONTAIN AT LEAST ONE ELECTRON.

THE PROTON HAS THREE UPQUARKS AND ONE ELECTRON.

THE NEUTRON HAS THREE UPQUARKS AND TWO ELECTRONS.

PARTICLE	CHARGE	PROTON	PROTON	NEUTRON	NEUTRON
-	-	CONTAINS	CHARGE	CONTAINS	CHARGE
UPQUARKS	$+2/3$	3	+2	3	+2
ELECTRONS	-1	1	-1	2	-2
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<b>SUM OF CHARGES</b>	-	-	<b>+1</b>	-	<b>0</b>

CHARGE FROM THE TABLE ABOVE, YOU CAN CLEARLY SEE THAT WHEN THE NEUTRON LOSES AN ELECTRON, IT WILL TRANSFORM INTO A PROTON. BY THE SAME TOKEN, IF THE PROTON WERE TO GAIN AN ELECTRON, IT WOULD TRANSFORM INTO A NEUTRON.

## Neutrinos from beta decay

Let's look at a process called beta decay. One type (the kind that happens in nuclear reactors) is when a neutron turns into a proton. Protons and neutrons consist of fundamental particles called quarks. A down quark within the neutron transforms into an up quark, changing the neutron into a proton (and changing the atomic element as a result). The laws of physics require that a few different properties be conserved, so the process also releases an electron and an electron antineutrino.

<https://neutrinos.fnal.gov/sources/beta-decay/>

BETA DECAY WITHIN A NUCLEUS WILL CONVERT A NEUTRON INTO A PROTON. THIS CLEARLY SHOWS

THAT ELECTRONS MUST BE CONTAINED WITHIN THE NUCLEUS; AND BY EXTENSION; WITHIN BOTH THE PROTON AND THE NEUTRON.

THEREFORE, THERE IS ONLY ONE TYPE OF QUARK AND THAT IS THE UPQUARK.

THE UPQUARK ALWAYS CONTAINS +2/3 CHARGE. THIS CLEARLY SHOWS THAT THEY MUST ALSO CONTAIN P-STRING PHOTONS AND NEUTRINOS. THE P-STRING PHOTONS COMBINE TO GIVE THE UPQUARK ITS POSITIVE CHARGE; WHILE THE NEUTRINOS COMBINE TO GIVE THE UPQUARK ITS MASS.

THE FOLLOWING TABLE SHOWS HOW THE FUNDAMENTAL PARTICLES OF THE NEUTRINO AND THE PHOTON COMBINE TO FORM THE OTHER PARTICLES THAT COMPRISE THE NUCLEUS OF AN ATOM.

PARTICLE	NEUTRINO	P-STRING PHOTON	N-STRING PHOTON
.	.	.	.
<b>POSITRON</b>	<b>NONE</b>	<b>YES</b>	<b>NONE</b>
<b>ELECTRON</b>	<b>NONE</b>	<b>NONE</b>	<b>YES</b>
<b>UPQUARK</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
<b>PROTON</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>
<b>NEUTRON</b>	<b>YES</b>	<b>YES</b>	<b>YES</b>

EXCEPT FOR POSITRONS WHICH ARE COMPOSED ENTIRELY OF P-STRING PHOTONS; AND ELECTRONS WHICH ARE COMPOSED ENTIRELY OF N-STRING PHOTONS; THE MAJORITY OF THE MASS IN THE UPQUARKS, PROTONS AND NEUTRONS CONSIST OF NEUTRINOS.

## DYNAMISM'S 'QUANTUM' MODEL OF GRAVITY

THE GRAVITATIONAL FORCE IS ALSO DERIVED FROM THE ELECTRICAL FORCE.

ALTHOUGH NEUTRINOS ARE NEUTRALLY CHARGED, THERE IS STILL AN EXTREMELY SLIGHT OVERALL ELECTRICAL ATTRACTION BETWEEN THE P-STRING HALF OF EACH NEUTRINO, TO THE N-STRING HALF OF EVERY OTHER NEUTRINO. LIKewise A SLIGHT OVERALL ELECTRICAL ATTRACTION BETWEEN THE N-STRING HALF OF EACH NEUTRINO TO THE P-STRING HALF OF EVERY OTHER NEUTRINO.

THESE SLIGHT OVERALL ATTRACTIONS BETWEEN EACH NEUTRINO AGGREGATE TO GIVE US THE OVERALL FORCE OF GRAVITATIONAL ATTRACTION.

THE ELECTRICAL ATTRACTION BETWEEN THE P-STRING HALF AND THE N-STRING HALF OF EACH NEUTRINO IS A CONSTANT. THE ONLY VARIABLE IS DISTANCE.

THE ACTUAL FORCE OF ATTRACTION BETWEEN ANY TWO GIVEN NEUTRINOS WILL VARY ACCORDING TO THE INVERSE SQUARE LAW.

$$F = \frac{G \times N1 \times N2}{R^2}$$

- 'G' IS THE GRAVITATIONAL CONSTANT.
- 'N1' IS NEUTRINO ONE
- 'N2' IS NEUTRINO TWO
- 'R' IS DISTANCE BETWEEN THE TWO NEUTRINOS

FORCES OF THE SAME TYPE CAN ADD TOGETHER, WHICH MAKES THEM 'ADDITIVE'; OR SUBTRACT FROM EACH OTHER, WHICH MAKES THEM 'SUBTRACTIVE'.

ELECTRICAL ATTRACTION IS ADDITIVE. AS THE DISTANCE BETWEEN THE TWO ELECTRICALLY ATTRACTED OBJECTS DECREASES THE FORCE OF ATTRACTION INCREASES IN ACCORDANCE WITH THE INVERSE SQUARE LAW.

ELECTRICAL REPULSION IS SUBTRACTIVE. AS THE DISTANCE BETWEEN THE TWO ELECTRICALLY REPULSED OBJECTS INCREASES THE FORCE OF REPULSION DECREASES IN ACCORDANCE WITH THE INVERSE SQUARE LAW.

THIS TINY DIFFERENCE BETWEEN THE ADDITIVE FORCE OF ATTRACTION; AND THE SUBTRACTIVE FORCE OF REPULSION; IS ENOUGH TO GIVE EACH NEUTRINO AN OVERALL ATTRACTION FOR EVERY OTHER NEUTRINO.

THE FORCE OF ELECTRICAL CHARGE IS RESPONSIBLE FOR MAGNETISM, ELECTROMAGNETISM AND GRAVITY. THUS ALL OF THESE FORCES HAVE THE SAME SOURCE. THEY ARE ALL EITHER ELECTRICAL, OR DERIVED FROM THE ELECTRICAL.

THE SIMPLICITY OF THIS MODEL IS ALL PART OF GOD'S 'INTELLIGENT DESIGN'. THE FATHER HAS BLESSED ME WITH THIS INSIGHT; AND I AM SUPREMELY GRATEFUL TO HIM FOR DOING SO.

## **THE STRONG FORCE IS ACTUALLY DUE TO THE INVERSE CUBE LAW FOR MAGNETIC FIELDS**

IN THE WORLD OF ELECTRICAL CHARGES:

1. LIKE FORCES REPEL.
2. UNLIKE FORCES ATTRACT.

SINCE THE NUCLEUS OF AN ATOM CONTAINS MANY POSITIVELY CHARGED PROTONS, THE QUESTION AROSE EARLY IN THE STUDY OF THE NUCLEUS:

'WHY DOES THE NUCLEUS STAY TOGETHER DESPITE THE REPULSION THAT ALL OF THOSE POSITIVELY CHARGED PROTONS HAVE FOR EACH OTHER?'

SOMEONE PROPOSED A THEORETICAL 'STRONG' FORCE THAT WAS SHORT RANGED AND WHICH WAS CARRIED BY A PARTICLE KNOWN AS A 'GLUON'. THE THEORY WAS ACCEPTED BY THE THEORETICAL SCIENTISTS OF THAT DAY, AND CONTINUE TO BE ACCEPTED AS OF THE WRITING OF THIS BOOK.

### **Strong nuclear force**

The fundamental force of nature that holds protons and neutrons together in the atomic nucleus

By Richard Webb

Question: when is a strong force not a strong force? Answer: when it's anywhere outside the atomic nucleus. That at least is the case with the strong nuclear force, one of four fundamental forces of nature (the others being electromagnetism, gravity and the weak nuclear force).

The strong force holds together quarks, the fundamental particles that make up the protons and neutrons of the atomic nucleus, and further holds together protons and neutrons to form atomic nuclei. As such it is responsible for the underlying stability of matter. Its huge power is also what is released in the process of nuclear fusion in the sun, or nuclear fission in a nuclear bomb.

<https://www.newscientist.com/definition/strong-nuclear-force/>

THERE IS NO SUCH THING AS A 'STRONG' FORCE IN NUCLEAR PHYSICS.

I NEVER THOUGHT THAT A 'STRONG' FORCE EXISTED, BECAUSE NO WHERE IN THE PROVEN LAWS OF NATURE IS THERE ANY FORCE THAT ONLY EXISTS AT ONE LEVEL OF THE SCALE, AND NO WHERE ELSE.

I HAVE ALWAYS THOUGHT THAT THERE HAS TO BE A BETTER EXPLANATION FOR WHAT KEEPS THE NUCLEUS FROM DISINTEGRATING, THAN THE CONCEPT OF A SO-CALLED 'STRONG FORCE'.

I SPENT MORE THAN TWENTY YEARS SEARCHING FOR A BETTER EXPLANATION, AND I BELIEVE THAT I HAVE FOUND IT IN THE FORM OF A SINGLE POINT SOURCE MAGNETIC FIELD, WHICH IS A MAGNETIC MONOPOLE, AND WHICH ACTS IN ACCORDANCE WITH THE INVERSE CUBE LAW.

QUARKS AND PROTONS ARE COMPOSED OF MANY POSITIVELY CHARGED PHOTONS CALLED P-STRINGS. SO BOTH QUARKS AND PROTONS ARE POSITIVELY CHARGED PARTICLES. WITHIN THE NUCLEUS THESE QUARKS AND PROTONS ARE IN CONSTANT MOTION. MOVING ELECTRICAL CHARGES GENERATE MAGNETIC FIELDS. THE KIND OF MAGNETIC FIELD GENERATED BY THE ROTATIONAL MOVEMENT OF QUARKS AND PROTONS IS DIFFERENT FROM THE NORMAL MAGNETIC FIELDS GENERATED BY NORMAL MAGNETS OR ELECTROMAGNETS.

A CHARGED PARTICLE THAT IS RAPIDLY ROTATING WILL CREATE A MAGNETIC 'MONOPOLE'; WHICH IS A POINT SOURCE FOR A MAGNETIC FIELD; AND IT WILL BEHAVE ACCORDING TO THE INVERSE CUBE LAW.

I HYPOTHEZIZE THAT MAGNETIC MONOPOLES GENERATE MAGNETIC FIELDS THAT ACT IN ACCORDANCE WITH THE INVERSE CUBE LAW BECAUSE OF THE UNIQUE WAY IN WHICH THEY ARE GENERATED. THE ELECTRIC FIELD GENERATED BY A ROTATING CHARGE WILL ALWAYS ACT IN ACCORDANCE WITH THE INVERSE SQUARE LAW. SINCE THE MAGNETIC MONOPOLE IS GENERATED FROM THIS MOTION THE MAGNETIC FIELD GENERATED CANNOT ALSO ACT IN ACCORDANCE WITH THE INVERSE SQUARE LAW, AND THEREFORE IT ACTS IN ACCORDANCE WITH THE INVERSE CUBE LAW.



MAGNETIC FIELD STRENGTH = TESLAS DIVIDED BY DISTANCE FROM POINT SOURCE CUBED:

$$F = \frac{L X T}{R^3}$$

F = FORCE    L = **MAGNETIC** CONSTANT    T = TESLA    R = DISTANCE

AT THE EXTREMELY SMALL SCALES OF THE SUBATOMIC WORLD, THE FIELD GENERATED BY A SPINNING QUARK, OR A SPINNING PROTON WILL BE EXTREMELY STRONG AND THIS IS WHAT KEEPS THE NUCLEUS FROM DISINTEGRATING.

THIS IS A TABLE THAT COMPARES THE STRENGTH OF THE INVERSE SQUARE TO THE STRENGTH OF THE INVERSE CUBE AT THE SUBATOMIC LEVEL:

DISTANCE	<b>1</b> ----- DISTANCE SQUARED	<b>1</b> ----- DISTANCE CUBED
-	<b>ELECTRICAL REPULSION OF POSITIVELY CHARGED PARTICLES</b>	<b>MAGNETIC ATTRACTION OF PARTICLES</b>
<b>1.0</b>	<b>1</b>	<b>1</b>
<b>0.1</b>	<b>100</b>	<b>1000</b>
<b>0.01</b>	<b>10000</b>	<b>1000000</b>
<b>0.001</b>	<b>1000000</b>	<b>1000000000</b>
<b>0.0001</b>	<b>100000000</b>	<b>1000000000000</b>
<b>0.00001</b>	<b>10000000000</b>	<b>1000000000000000</b>

THE REPULSIVE ELECTRICAL FORCE WILL ACT IN ACCORDANCE WITH THE INVERSE SQUARE LAW; SO IT GROWS VERY LARGE AS THE DISTANCE GETS SMALLER AND SMALLER. BUT THE ATTRACTIVE MAGNETIC FORCE WILL ACT IN ACCORDANCE WITH THE INVERSE CUBE LAW; SO IT GROWS AT A MUCH FASTER RATE AS THE DISTANCE GETS SMALLER AND SMALLER.

IT IS QUITE OBVIOUS THAT IT IS THE STRENGTH OF THE MAGNETIC FIELD, AT REALLY SMALL DISTANCES, THAT ACTS AS AN IMPASSABLE BOUNDARY FOR ELECTRICAL CHARGES. AT VERY CLOSE RANGE TO THE RAPIDLY ROTATING POINT SOURCE THE MAGNETIC FIELD IS INCREDIBLY STRONG BECAUSE OF THE INVERSE CUBE LAW. THE FIELD SURROUNDS THE NUCLEUS OF THE ATOM AS AN IMPASSABLE BARRIER. IT IS NOT ONLY THE POSITIVELY CHARGED PROTONS AND UPQUARKS THAT ARE HELD IN PLACE INSIDE THE NUCLEUS; BUT ORBITING ELECTRONS IN THE ELECTRON SHELL CANNOT PENETRATE THE BARRIER TO CRASH INTO THE NUCLEUS EITHER.

## **THE WEAK FORCE IS DUE TO LARGE UNSTABLE NUCLEI**

NOTE THAT IN THE ABOVE TABLE, THE STRENGTH OF THE MAGNETIC FIELD IS EXTREMELY LARGE WHEN THE DISTANCE BECOMES EXTREMELY SMALL.

HOWEVER, WHEN THE DISTANCE BECOMES LARGE ENOUGH, THE MAGNETIC FIELD RAPIDLY GETS WEAKER AND THIS IS WHAT CAUSES THE INSTABILITY THAT LEADS TO THE DISINTEGRATION OF THE LARGER NUCLEI AT THE UPPER END OF THE PERIODIC TABLE.

WHEN THE NUCLEUS IS LARGE ENOUGH THE MAGNETIC FIELD GENERATED BY THE SPINNING NUCLEUS IS NOT STRONG ENOUGH TO HOLD ONTO ALL OF THE PARTICLES ON THE OUTSIDE OF THE NUCLEUS. SO ALPHA PARTICLES ON THE OUTER EDGE OF THE NUCLEUS WILL FLY OFF BECAUSE THEY REACH 'ESCAPE VELOCITY' AND THIS IS WHAT IS RESPONSIBLE FOR ALPHA PARTICLE DECAY.

### **alpha decay**

physics

Written and fact-checked by  
The Editors of Encyclopaedia Britannica  
Article History

**Alpha decay**, type of radioactive disintegration in which some unstable atomic nuclei dissipate excess energy by spontaneously ejecting an alpha particle. Because alpha particles have two positive charges and a mass of four units, their emission from nuclei produces daughter nuclei having a positive nuclear charge or atomic number two units less than their parents and a mass of four units less. Thus polonium-210 (mass number 210 and atomic number 84, i.e., a nucleus with 84 protons) decays by alpha emission to lead-206 (atomic number 82).

The speed and hence the energy of an alpha particle ejected from a given nucleus is a specific property of the parent nucleus and determines the characteristic range or distance the alpha particle travels. Though ejected at speeds of about one-tenth that of light, alpha particles are not very penetrating. They have ranges in air of only a few centimetres (corresponding to an energy range of about 4 million to 10 million electron volts).

<https://www.britannica.com/science/alpha-decay>

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ALL OTHER RADIATION WHICH THE SO-CALLED 'WEAK' FORCE IS SUPPOSED TO BE RESPONSIBLE FOR, IS CAUSED BY SIMILAR TYPES OF INSTABILITY.

THERE **IS** NO 'WEAK' FORCE!

THESE ARE THE FOUR FUNDAMENTAL FORCES:

1. ELECTRICITY
2. MAGNETISM
3. ELECTROMAGNETISM
4. GRAVITY

THE THEORETICAL PHYSICISTS HAVE BEEN PROPAGATING THESE BAD THEORIES ABOUT 'STRONG' AND 'WEAK' FORCES FOR A VERY LONG TIME.

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## The Standard Model

The theories and discoveries of thousands of physicists since the 1930s have resulted in a remarkable insight into the fundamental structure of matter: everything in the universe is found to be made from a few basic building blocks called fundamental particles, governed by four fundamental forces. Our best understanding of how these particles and three of the forces are related to each other is encapsulated in the Standard Model of particle physics. Developed in the early 1970s, it has successfully explained almost all experimental results and precisely predicted a wide variety of phenomena. Over time and through many experiments, the Standard Model has become established as a well-tested physics theory.

### Matter particles

All matter around us is made of elementary particles, the building blocks of matter. These particles occur in two basic types called quarks and leptons. Each group consists of six particles, which are related in pairs, or "generations". The lightest and most stable particles make up the first generation, whereas the heavier and less-stable particles belong to the second and third generations. All stable matter in the universe is made from particles that belong to the first generation; any heavier particles quickly decay to more stable ones. The six quarks are paired in three generations - the "up quark" and the "down quark" form the first generation, followed by the "charm quark" and "strange quark", then the "top quark" and "bottom (or beauty) quark". Quarks also come in three different "colours" and only mix in such ways as to form colourless objects. The six leptons are similarly arranged in three generations - the "electron" and the "electron neutrino", the "muon" and the "muon neutrino", and the "tau" and the "tau neutrino". The electron, the muon and the tau all have an electric charge and a sizeable mass, whereas the neutrinos are electrically neutral and have very little mass.

### Forces and carrier particles

There are four fundamental forces at work in the universe: the strong force, the weak force, the electromagnetic force, and the gravitational force. They work over different ranges and have different strengths. Gravity is the weakest but it has an infinite range. The electromagnetic force also has infinite range but it is many times stronger than gravity. The weak and strong forces are effective only over a very short range and dominate only at the level of subatomic particles. The weak force is weaker than the strong force and the electromagnetic force, but it is still much stronger than gravity. The strong force, as the name suggests, is the strongest of all four fundamental interactions.

Three of the fundamental forces result from the exchange of force-carrier particles, which belong to a broader group called "bosons". Particles of matter transfer discrete amounts of energy by exchanging bosons with each other. Each fundamental force has its own corresponding boson - the strong force is carried by the "gluon", the electromagnetic force is carried by the "photon", and the "W and Z bosons" are responsible for the weak force. Although not yet found, the "graviton" should be the corresponding force-carrying particle of gravity. The Standard Model includes the electromagnetic, strong and weak forces and all their carrier particles, and explains well how these forces act on all of the matter particles. However, the most familiar force in our everyday lives,

gravity, is not part of the Standard Model, as fitting gravity comfortably into this framework has proved to be a difficult challenge. The quantum theory used to describe the micro world, and the general theory of relativity used to describe the macro world, are difficult to fit into a single framework. No one has managed to make the two mathematically compatible in the context of the Standard Model. But luckily for particle physics, when it comes to the minuscule scale of particles, the effect of gravity is so weak as to be negligible. Only when matter is in bulk, at the scale of the human body or of the planets for example, does the effect of gravity dominate. So the Standard Model still works well despite its reluctant exclusion of one of the fundamental forces.

<https://home.cern/science/physics/standard-model>

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I THINK THAT THEY HAVE LOST A LOT OF CREDIBILITY BECAUSE THEIR STANDARD MODEL IS COMPLETELY USELESS.

THESE PEOPLE HAVE APPARENTLY NEVER HEARD OF THE CONCEPT OF OCCAM'S RAZOR.

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## Occam's razor

A guiding principle of logic exhorting us to keep things as simple as possible

By Chris Simms

Occam's razor is a principle often attributed to 14th-century friar William of Ockham that says that if you have two competing ideas to explain the same phenomenon, you should prefer the simpler one.

Many other people before and after the friar, including Albert Einstein and Isaac Newton, have come up with similar rules, but it is generally attributed (via an alternative spelling of the name of the village in which he grew up) to Ockham because he used the principle with such razor-like logic to state, along with other things, that "God's existence cannot be deduced by reason alone".

The principle can be applied in many fields of science and logic. If two computer programs do the same job, for example, the shorter one, in which less code can go wrong, is probably preferable. Or if you are a doctor and a patient turns up complaining of a blocked nose, it is more likely they have a common cold than a rare immune-system disorder. As medical students are sometimes told, "When you hear hoof beats, think horses, not zebras". Or as the US Navy KISS design principle states, "Keep it simple, stupid".

<https://www.newscientist.com/definition/occams-razor/>

#:~:text=Occam%27s%20razor%20is%20a%20principle,should%20prefer%20the%20simpler%20one.

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IF GOD HAD BUILT THE UNIVERSE ACCORDING TO THE 'STANDARD MODEL' THEN THE IDEA OF 'INTELLIGENT DESIGN' WOULD NEVER HAVE COME UP.

IF THAT UNIVERSE BUILT ON THEIR 'STANDARD MODEL' HAD SOMEHOW BEEN MIRACULOUSLY MADE TO WORK, THEN THE CONCEPT THAT WOULD HAVE COME UP WOULD BE 'IDIOTIC DESIGN'.

THESE THEORETICAL SCIENTISTS ARE SUPPOSED TO BE SOME OF THE SMARTEST PEOPLE THAT EVER LIVED. SO WHY IS THEIR STANDARD MODEL SO FULL OF HOLES?

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## What's up with the W boson mass?

05/24/22

By Sarah Charley

The CDF experiment at Fermilab measured the mass of the W boson and came up with an answer that no one expected.

Duke physics professor Ashutosh Kotwal always tells his students to work through problem sets independently before consulting with classmates.

"If you discuss too much with each other right from the beginning, you might end up reproducing someone else's thoughts," he says. "Take your best shot and see how far you can go. Once you get to the end, then—and only then—get together with your colleagues and compare."

As researchers, Kotwal and his colleagues apply this same methodology. Independent teams of scientists tackle the same fundamental problems using distinct detectors and techniques. Only after making their measurement do the physicists compare their methodology and results with those from other experiments.

But unlike for Kotwal's students, the right answer is not listed in the back of a book.

"We're searching for the facts with as much rigor as we can," Kotwal says. "I think that the excitement of figuring something out is almost as much as what the answer will be."

Kotwal works on the CDF experiment at the US Department of Energy's Fermi National Accelerator Laboratory. For the last 27 years, he and his colleagues have worked on measuring the mass of the W boson, a fundamental particle responsible for nuclear fusion and decay. They published their most recent measurement in the journal Science in April.

Since the W boson was discovered in 1983, physicists on eight different experiments have measured its mass a total of 10 times. Every other time, the measurement has fit within the range predicted by the Standard Model. But this time, to the surprise of everyone, it did not; it came in higher than expected.

"We knew that CDF was working on this," says Mika Vesterinen, a researcher at the University of Warwick. "We could extrapolate from their previous measurement in 2012 and guess what the uncertainty was going to be. But the central value was a complete shock. We were not expecting that."

Theorists immediately published dozens of papers speculating what new physics could be bolstering the W boson's mass. "It's not in agreement with the theory, so something must be wrong," says Matthias Schott, an experimental physicist and professor at Johannes Gutenberg University Mainz. "Either our theory is wrong, or the measurement is wrong."

[https://www.symmetrymagazine.org/article/whats-up-with-the-w-boson-mass?language\\_content\\_entity=und](https://www.symmetrymagazine.org/article/whats-up-with-the-w-boson-mass?language_content_entity=und)

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I THINK I KNOW WHAT THE PROBLEM WITH THE 'W' BOSON IS:

**IT DOESN'T EXIST!**

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Matthew 7:17-19

King James Version

17 Even so every good tree bringeth forth good fruit; but a corrupt tree bringeth forth evil fruit.

18 A good tree cannot bring forth evil fruit, neither can a corrupt tree bring forth good fruit.

19 Every tree that bringeth not forth good fruit is hewn down, and cast into the fire.

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ALL OF THEIR THEORIES ARE WRONG. JESUS CHRIST POPHECIES THAT

**'EVERY TREE THAT BRINGETH NOT FORTH GOOD FRUIT IS HEWN DOWN, AND CAST INTO THE FIRE.'**

BY ANALOGY, THE STANDARD MODEL, AND ALL OF THEIR OTHER THEORIES, ARE USELESS; AND SINCE THEY DON'T BEAR ANY GOOD FRUIT, THEY WILL BE REPLACED AND FORGOTTEN, AT SOME TIME IN THE FUTURE.

## MASS IN MOTION

ISAAC NEWTON DECLARED THAT THERE WERE ONLY THREE LAWS OF MOTION:

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### What are Newton's Laws of Motion?

1. An object at rest remains at rest, and an object in motion remains in motion at constant speed and in a straight line unless acted on by an unbalanced force.
2. The acceleration of an object depends on the mass of the object and the amount of force applied.
3. Whenever one object exerts a force on another object, the second object exerts an equal and opposite on the first.

Sir Isaac Newton worked in many areas of mathematics and physics. He developed the theories of gravitation in 1666 when he was only 23 years old. In 1686, he presented his three laws of motion in the "Principia Mathematica Philosophiae Naturalis."

By developing his three laws of motion, Newton revolutionized science. Newton's laws together with Kepler's Laws explained why planets move in elliptical orbits rather than in circles.

Below is a short movie featuring Orville and Wilbur Wright and a discussion about how Newton's Laws of Motion applied to the flight of their aircraft.

<https://www1.grc.nasa.gov/beginners-guide-to-aeronautics/newtons-laws-of-motion/>

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I DECLARE THAT THAT THERE ARE FOUR STATES OF MOTION:

**1. THE STATE OF MOMENTUM.**

**MASS TIMES VELOCITY.**

$$\text{VELOCITY} = \frac{D}{T}$$

**D = DISTANCE      T = TIME**

**2. THE STATE OF FORCE.**

**MASS TIMES ACCELERATION.**

$$\text{ACCELERATION} = \frac{D}{T^2}$$

**D = DISTANCE      T = TIME**

**3. THE STATE OF ENERGY.**

**MASS TIMES VELOCITY<sup>2</sup>.**

$$\text{VELOCITY}^2 = \frac{D^2}{T^2}$$

**D = DISTANCE      T = TIME**

**4. THE STATE OF POWER.**

**MASS TIMES VELOCITY<sup>2</sup> DIVIDED BY TIME.**

$$\frac{\text{VELOCITY}^2}{\text{TIME}} = \frac{D^2}{T^3}$$

**D = DISTANCE      T = TIME**

THERE IS NO MOTION WITHOUT MASS!

MOTION	MATTER	MULTIPLY BY	MOVEMENT
.	.	.	.
MOMENTUM	MASS	TIMES	VELOCITY
FORCE	MASS	TIMES	ACCELERATION
ENERGY	MASS	TIMES	VELOCITY SQUARED
POWER	MASS	TIMES	<u>VELOCITY SQUARED</u> TIME

**1. THE STATE OF MOMENTUM.**

**MOMENTUM = MASS X VELOCITY**

**2. THE STATE OF FORCE.**

**FORCE = MASS X ACCELERATION**

**3. THE STATE OF ENERGY.**

$$\text{ENERGY} = \text{MASS} \times \text{VELOCITY SQUARED}$$

#### 4. THE STATE OF POWER.

$$\text{POWER} = \frac{\text{MASS} \times \text{VELOCITY SQUARED}}{\text{TIME}}$$

THIS BREAKS DOWN TO:

##### 1. THE STATE OF MOMENTUM.

$$\text{MOMENTUM} = \frac{\text{M} \times \text{D}^1}{\text{T}^1}$$

$$\text{M} = \text{MASS} \quad \text{D} = \text{DISTANCE} \quad \text{T} = \text{TIME}$$

##### 2. THE STATE OF FORCE.

$$\text{FORCE} = \frac{\text{M} \times \text{D}^1}{\text{T}^2}$$

$$\text{M} = \text{MASS} \quad \text{D} = \text{DISTANCE} \quad \text{T} = \text{TIME}$$

##### 3. THE STATE OF ENERGY.

$$\text{ENERGY} = \frac{\text{M} \times \text{D}^2}{\text{T}^2}$$

$$\text{M} = \text{MASS} \quad \text{D} = \text{DISTANCE} \quad \text{T} = \text{TIME}$$

##### 4. THE STATE OF POWER.

$$\text{POWER} = \frac{\text{M} \times \text{D}^2}{\text{T}^3}$$

$$\text{M} = \text{MASS} \quad \text{D} = \text{DISTANCE} \quad \text{T} = \text{TIME}$$

THERE IS A PATTERN HERE!

**THE GENERAL MOTION EQUATION IS:**

$$\text{MOTION} = \frac{\text{M} \times \text{D}}{\text{T}}$$

$$\text{M} = \text{MASS} \quad \text{D} = \text{DISTANCE} \quad \text{T} = \text{TIME}$$

**THIS IS MY UNIFIED MOTION EQUATION:**

I CAN FIND ANY OF THE FOUR STATES OF MOTION BY SUBSTITUTING THE CORRECT NUMBERS:

$$\text{MOTION} = \frac{\text{M} \times \text{D}^{[1, 2]}}{\text{T}^{[1, 2, 3]}}$$

$$\text{M} = \text{MASS} \quad \text{D} = \text{DISTANCE} \quad \text{T} = \text{TIME}$$

IS IT POSSIBLE TO UNIFY ALL OF THE FIELDS OF FORCE IN THE SAME WAY?

A UNIFIED FIELD THEORY HAS BEEN THE 'HOLY GRAIL' OF SCIENCE FOR OVER A HUNDRED YEARS. THE ATTEMPT BY MODERN DAY PHYSICS TO DEVELOP THE 'STANDARD MODEL' HAS BEEN A QUEST TO ACHIEVE THAT GOAL.

UNFORTUNATELY, THE STANDARD MODEL IS ANALOGICALLY EQUIVALENT TO THE GEOCENTRIC MODEL OF THE SO-CALLED 'DARK AGES'. THE GEOCENTRIC MODEL WAS BASED ON THE IDEA THAT EVERYTHING REVOLVED AROUND THE EARTH. 'GEO' MEANS EARTH. SO GEOCENTRIC LITERALLY MEANS 'EARTH CENTERED'.

BUT THE GEOCENTRIC MODEL WAS NOT USEFUL FOR MAKING ACCURATE PREDICTIONS ABOUT THE

MOVEMENT OF THE KNOWN PLANETS, SUCH AS MERCURY, VENUS, MARS, AND JUPITER. THUS IT WAS EVENTUALLY REPLACED BY A BETTER MODEL, THE 'HELIOCENTRIC MODEL'; WHICH WAS SUN CENTERED; AND WHICH WAS MUCH MORE ACCURATE IN PREDICTING THE MOVEMENT OF THE 'HEAVENLY BODIES'.

THE INEFFECTIVENESS OF THE 'STANDARD MODEL' CLEARLY INDICATES THAT IT WILL BE REPLACED BY A BETTER MODEL EVENTUALLY. THERE IS NO DOUBT THAT A BETTER MODEL, WHICH GIVES MORE ACCURATE PREDICTIONS, IS NOT ONLY DESIRABLE, BUT IS ALSO A NECESSITY IF MANKIND IS TO ADVANCE BEYOND OUR CURRENT 'DARK AGE'.

## **THE GRAND UNIFIED THEORY OF PHYSICS**

MODERN DAY THEORETICAL PHYSICS HAS BASICALLY DISCREDITED ISAAC NEWTON'S 'PRINCIPIA' AND NEWTON'S 'OPTICKS' AS A WAY FORWARD IN UNDERSTANDING THE PHYSICAL UNIVERSE.

MY APPROACH IS COMPLETELY OPPOSITE TO THEIRS; FOR I BELIEVE THAT EXTENDING NEWTONIAN PHYSICS INTO THE REALM OF THE VERY SMALL SUBATOMIC PARTICLES, AND INTO THE REALM OF THE VERY LARGE ASTRONOMIC GALACTIC SUPERCLUSTERS, IS THE ONLY WAY FORWARD TO UNIFYING ALL OF THE DIFFERENT SCALES OF PHYSICS ONTO ONE MODEL; ONE SYSTEM; ONE DYNAMIC CONCEPT THAT ALLOWS FOR GREATER PREDICTABILITY AND APPLICABILITY THAN WE HAVE TODAY WITH THE CURRENT THEORIES.

THE IDEA OF UNIFYING ALL OF THE KNOWN FORCES OF PHYSICS INTO ONE SYSTEM; ONE MODEL; PERHAPS EVEN ONE EQUATION; HAS BEEN THE 'HOLY GRAIL' OF PHYSICS FOR A VERY LONG TIME.

### **The big idea of Grand Unified Theories of physics**

If the electromagnetic and weak forces unify to make the electroweak force, maybe, at higher energies, something even grander happens?

Whenever we think about the Universe at a fundamental level, there's always the temptation to wonder if reality might somehow be simpler than we perceive it to be. As complex and diverse as the natural world is, it's humbling to recognize that everything we see, perceive, and interact with is made of the same building blocks. Matter is made of atoms, which are made of protons, neutrons, and electrons; protons and neutrons are further made of quarks and gluons. There are other particles as well: photons, neutrinos, and some heavier cousins of the light quarks and the electrons. Taken all together, everything that cannot be divided further — what we call “fundamental” or “elementary” — makes up the modern Standard Model of elementary particles.

And yet, it's only natural to wonder if the particles and forces that we know today couldn't be further simplified, perhaps all emerging from some more unified state that existed early on in the Universe's history? That's the question of Patreon supporter Igor Zhbanov, who writes in to ask:

“What [does] the Grand Unified Theory mean in practice? I.e., what does it mean that at the higher energy level we will have only one kind of force? E.g., will we have two balls of energy that will gravitate and electrically attract with the same force value simultaneously? And will we have only one formula for expressing all the physical laws? Or how will the particles behave under this unified force?”

Despite the fact that names like “Grand Unified Theory” or “Grand Unification” sound simple, it's one of the most difficult ideas in theoretical physics to truly wrap your head around. Let's explore what it's all about.

<https://bigthink.com/starts-with-a-bang/grand-unified-theories-physics/>

I BELIEVE THAT ANY ATTEMPT TO DISCOVER A 'GRAND UNIFICATION THEORY' MUST START WITH THE PROVEN LAWS OF SCIENCE THAT WE ALREADY KNOW TO BE TRUE.

#### **GRAVITY:**

$$\mathbf{F} = \mathbf{G} \times \frac{\mathbf{M}_1 \times \mathbf{M}_2}{R^2}$$

F = FORCE    G = **GRAVITATIONAL** CONSTANT    M = MASS    R = DISTANCE

THIS IS **ISAAC NEWTON'S UNIVERSAL GRAVITATIONAL EQUATION.**

ISAAC NEWTON'S UNIVERSAL GRAVITATION LAW IS PROVABLY TRUE.

IT HAS TO BE THE CORNERSTONE OF ANY GRAND UNIFICATION MODEL THAT IS ACTUALLY PROVABLY TRUE.

- THE LARGER THE MASSES, THE LARGER THE FORCE.
- THE SMALLER THE MASSES, THE SMALLER THE FORCE.
- THE LARGER THE DISTANCE THE SMALLER THE FORCE.
- THE SMALLER THE DISTANCE THE LARGER THE FORCE.

NEWTON'S LAW CALCULATES HOW STRONG THE GRAVITATIONAL FORCE WOULD BE AT ANY GIVEN POINT WITHIN THE 'FIELD'.

#### **ELECTRICAL:**

$$F = \frac{K X Q1 X Q2}{R^2}$$

F = FORCE    K = **ELECTRICAL** CONSTANT    Q = CHARGE    R = DISTANCE

THIS IS **COULOMB'S LAW**.

- THE LARGER THE CHARGES, THE LARGER THE FORCE.
- THE SMALLER THE CHARGES, THE SMALLER THE FORCE.
- THE LARGER THE DISTANCE THE SMALLER THE FORCE.
- THE SMALLER THE DISTANCE THE LARGER THE FORCE.

COULOMB'S LAW CALCULATES HOW STRONG THE ELECTRICAL FORCE WOULD BE AT ANY GIVEN POINT WITHIN THE 'FIELD'.

#### **MAGNETISM:**

$$F = \frac{L X T1 X T2}{R^2}$$

F = FORCE    L = **MAGNETIC** CONSTANT    T = TESLA    R = DISTANCE

I CALL THIS '**TESLA'S LAW**'.

- THE LARGER THE TESLAS, THE LARGER THE FORCE.
- THE SMALLER THE TESLAS, THE SMALLER THE FORCE.
- THE LARGER THE DISTANCE THE SMALLER THE FORCE.
- THE SMALLER THE DISTANCE THE LARGER THE FORCE.

'TESLA'S LAW' CALCULATES HOW STRONG THE MAGNETIC FORCE WOULD BE AT ANY GIVEN POINT WITHIN THE 'FIELD'.

NOTE THAT ALL THREE EQUATIONS ARE TWO BODY EQUATIONS:

1. GRAVITATIONAL FIELD BETWEEN TWO MASSES. [M1 AND M2]
2. ELECTRICAL FIELD BETWEEN TWO CHARGES. [Q1 AND Q2]
3. MAGNETIC FIELD BETWEEN TWO MAGNETIC POLES. [T1 AND T2]

BUT WHAT IF THERE IS JUST A FIELD EMANATING FROM A SINGLE POINT SOURCE?

I CAN DERIVE A FORCE EQUATION FOR ELECTROMAGNETISM FROM THE ENERGY EQUATION FOR ELECTROMAGNETIC RAYS:

#### **PLANCK'S ENERGY EQUATION:**

$$E = H X V$$

E = ENERGY    H = **PLANCK'S** CONSTANT    V = FREQUENCY

FROM MECHANICS WE GET THE CONCEPT OF ENERGY BEING EQUAL TO WORK DONE BEING EQUAL TO FORCE APPLIED OVER A DISTANCE:

#### **ENERGY EQUALS WORK:**

$$\text{ENERGY} = \text{FORCE} \times \text{DISTANCE}$$

THEREFORE:

$$\text{FORCE} = \frac{\text{ENERGY}}{\text{DISTANCE}}$$



COMBINING THE TWO EQUATIONS I GET:

### **ELECTROMAGNETISM:**

$$\mathbf{F} = \frac{\mathbf{H X V}}{\mathbf{R}}$$

F = FORCE    H = **PLANCK'S** CONSTANT    V = FREQUENCY    R = DISTANCE

THIS IS **PLANCK'S LAW**.

- THE LARGER THE FREQUENCY, THE LARGER THE FORCE.
- THE SMALLER THE FREQUENCY, THE SMALLER THE FORCE.
- THE LARGER THE DISTANCE THE SMALLER THE FORCE.
- THE SMALLER THE DISTANCE THE LARGER THE FORCE.

PLANCK'S LAW CALCULATES HOW STRONG THE ELECTROMAGNETIC FORCE WOULD BE AT ANY GIVEN POINT WITHIN THE 'FIELD'.

### **MAGNETIC MONOPOLE**

$$\mathbf{F} = \frac{\mathbf{L X T}}{\mathbf{R^3}}$$

F = FORCE    L = **MAGNETIC** CONSTANT    T = TESLA    R = DISTANCE

THIS IS A SINGLE POINT SOURCE VERSION OF **TESLA'S LAW**.

- THE LARGER THE TESLAS, THE LARGER THE FORCE.
- THE SMALLER THE TESLAS, THE SMALLER THE FORCE.
- THE LARGER THE DISTANCE THE SMALLER THE FORCE.
- THE SMALLER THE DISTANCE THE LARGER THE FORCE.

TESLA'S LAW CALCULATES HOW STRONG THE MAGNETIC FORCE WOULD BE AT ANY GIVEN POINT WITHIN THE 'FIELD'.

THEREFORE I HAVE FIVE EQUATIONS FOR FIVE DIFFERENT TYPES OF FIELDS:

1. GRAVITATIONAL FIELD: TWO BODY:

$$\mathbf{F} = \frac{\mathbf{G X M1 X M2}}{\mathbf{R^2}}$$

2. ELECTRICAL FIELD: TWO BODY:

$$\mathbf{F} = \frac{\mathbf{K X Q1 X Q2}}{\mathbf{R^2}}$$

3. MAGNETIC FIELD: TWO BODY:

$$\mathbf{F} = \frac{\mathbf{L X T1 X T2}}{\mathbf{R^2}}$$

4. ELECTROMAGNETIC FIELD: ONE BODY:

$$\mathbf{F} = \frac{\mathbf{H X V}}{\mathbf{R}}$$

5. MAGNETIC FIELD: ONE BODY:

$$\mathbf{F} = \frac{\mathbf{L X T}}{\mathbf{R^3}}$$

THERE IS A PATTERN HERE!

### **THE BASIC INVERSE LAW FOR FIELDS OF FORCE:**

$$\mathbf{FORCE} = \frac{\mathbf{CONSTANT X BODIES}}{\mathbf{DISTANCE}}$$

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