

The digital elementary particle

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To cite this article

Kourosh Zaim. The Digital Elementary Particle, Open Science Journal of Modern Physics. Vol. 1, No. 1,2014, pp. 1-5

Abstract

The accepted scientific theory about "Creation" is that of the Big Bang theory, when the universe started to expand rapidly from a singularity of an infinitely small, infinitely dense, and infinitely hot state some 13.8 billion years ago. Evolution began at this point, and is continuing potentially for infinite billions of years to come. The starting point of evolution was the creation of the first elementary particle, the building block of everything in the universe, including us human beings. This first building block, or elementary particle, must have been nothing but a simple energy field with a positive or negative charge, spinning left or right, and referred to herein as a digital elementary particle. In the Big Bang Theory, when the singularity of infinitely dense matter explodes under infinite pressure and a temperature of billions of degrees, it creates an infinite number of energy fields that are shot out into space. The energy fields of positive and negative charges begin on their journey away from the origin, and then form infinite combinations of positive and negative energy fields in chance encounters. The combinations are much like the bits and bytes of computer programming. The energy fields continue to recombine in infinite number of arrangements until all particles that we have been able to detect or observe (electrons, neutrons, etc.) are formed. The continued chance encounters and recombinations and rearrangements during the first380,000 years create basic elements such as hydrogen, helium and lithium¹, and gradually over billions of years all the of which stars, planets, and life forms are composed were created. If all things are made by electromagnetic fields of simple digital nature, of -1 and +1 charges, then the construction of these things can also be deciphered by digital program. Provided technology is developed for reverse-engineering of cells and atoms back to their digital energy programs, one can hope that the ability to reprogram atoms, molecules and cells into something other than their present form will be a reality soon.

Keywords

Elementary Particle, Digital Particle, Energy Fields, Electromagnetic Fields, Vital Energy, Creation, Evolution

1. Preface

Theoretical physicists and astrophysicists are searching for how the universe was made, and what things are made of. Astrologists and psychologists want to know how the universe, or electromagnetic waves and subtle forces of universe, affect the mental makeup of beings. And biologists and geneticists seek to learn why genetics and DNA work. If "God" created us as equal, then why aren't we? Why are we so determined by genetics and DNA structure in our bodies, and is why each of us differently affected by similar environmental forces? Did it all happen by chance: was God just rolling dice at creation, unlike what Einstein said²? If "God" meant to create us, and all life forms and lifeless forms in our planet and in the infinite expanse of $universe(s)^3$, this way, then how did He manage to design us with a seemingly infinite spectrum of variables?

2. The Search for the Fundamental Particle

One of the primary goals of modern physics is to find out how the universe was made and what is made of—what is matter and what holds matter together? Leucippus⁴ Dalton⁵ and Rutherford⁶ pioneered this search. As technology advanced, the search for what the universe is made of led from to the atom, then to the discovery of more than 200 subatomic particles. And now, the search is down to the most basic particle found in the sophisticated particle accelerator at CERN. Up to now, even the smallest and simplest subatomic particles discovered have been found to be made of other yet simpler particles.

In sequence, it was Rutherford who showed that the atom was composed of a nucleus and orbiting electrons. More recent physicists discovered that the nucleus itself was made of neutrons and protons. The American Nobel prize laureate physicist Murray Gell-Mann the Russian-American physicist George Zweig each independently proposed the quark modelin 1964, making a quarkanelementary particleand a fundamental constituent ofmatter. In even more advanced research, scientists looked for the most elementary particle named the Higgs boson, and found it in the CERN super accelerator.

An elementary or fundamental particle is a particle whose structure is unknown, meaning it is not known to be composed of other particles. This is a conservative view, because particle physics is searching for "the" fundamental particle" that has no structure or no measurable internal structure, and is not made of anything smaller. This is theorized (in theories such as the Standard Model) to be the building block of the universe and everything in it.

3. Matter, Wave, Energy

We now know in physics that both matter and electromagnetic waves can be defined in terms of energy fields. Or, as conservative physicists would like to think, matter can be converted or transformed into energy. Regardless of our perception of it as matter, the elements of creation are energy and nothing but energy, which makes us and everything else in the universe.⁷

Einstein's famous equation $E=mc^2$ shows that energy is the same as matter or mass. Matter is not really a massive body like ours, or of a rock or a tree stump; it is compressed energy fields that can be transformed by nature's most complicated digital program into any particle of matter, which then composes these objects. The finding of the Higgs boson is crucial because it can be the energy field we are referring to or prove its existence or more believable. So, concepts in physics are really about energy, in all sorts of different appearances.

What classical physics relates to is the visible matter or mass, such as that of a human, tree, or any solid, liquid or gas that occupies space. Energy is what makes up these visible masses, so that they are nothing but various combinations or programs of compressed electromagnetic energy fields.

According to Einstein, matter and energy are one and the same, and interchangeable. While matter occupies space and is visible, energy takes the form of wave, mass or force and is the cause of all events in the universe. The first law of thermodynamics also implies that the quantity of energy and matter in the universe is fixed (and so does Einstein.)

Waves are also nothing but energy. We know that E = hv, where E is energy, h is Planck's constant (6.626x 10^{-34} Js)

and v frequency. Also, we know that $C = \lambda v$, where c is speed of light (3 x 10⁸ m/sec) and λ the wavelength. Replacing v in above equation, we get $v = c/\lambda$, then $E = hc/\lambda$. Putting in the values of Planck's constant and the speed of light in the equation, we end up with

 $E=6.626 \ x \ 10^{-34} \ J \cdot s \ x \ 3 \ x \ 10^8 \ m/sec \ \div \ 633 \ nm \ x \ 10^{-9} \ m/1$ nm, and $E=3.14 \ x \ 10^{-19} \ J$, which is the energy of a photon wave.

Now, we know that mass and electromagnetic waves are made of nothing but energy. If all matter and waves are energy, then the original elementary particle produced immediately upon the moment of the Big Bang cannot be anything but singular fields of energy. Here, I am merely showing how such energy fields turn into subatomic particles.

4. Digital Elementary Particle Theory

Human beings, as well as all physical beings, conscious, vegetative or lifeless, are made of the smallest element in nature, referred to as the elementary particle, a particle which cannot be subdivided. In particle physics, the elementary or fundamental particle is defined as a particle whose substructure is unknown⁸. I conjecture that this elementary particle must be a single energy field. If an atom is made of electrons with negative charge (composed of all-negative fields), protons with positive charge (composed of all-positive fields), and neutrons (composed of equal number of positive and negative energy fields, canceling each other's charges), then we can define all elements, atoms, molecules, and cells in terms of some combination or layered multiple combinations and arrangements of positive and negative charges.

Therefore, the very fundamental or elementary particle created at the very beginning of the universe, say the Big Bang, must have been single energy fields with only one of only two characteristics: energy fields of either positive or negative charge. It may be that depending on the field's positive or negative charge, it spins clockwise or counterclockwise. However, these fields can have absolutely no other characteristic and or function. Each field can be represented by signs (+ and -) or, in terms of computer terminology, 0 and 1.

This is the very principle that computers are programmed by: responding only to binary instruction codes of sequences of 0 and 1. All computer programs are based on "bits", having only one of the two values: 0 or 1. The basic computer atom is a "byte", composed of eight such "bits". Bytes represent different meanings for the program, depending on how their bits are arranged (sequence) and "charged" (0 or 1). A common computer program that makes our communication with that computer simpler and less time-consuming may contain trillions of bits of instructions.

It is the same way in the material universe. This most

elementary particle, or energy field, signifies the first binary code in nature. Everything in the universe is constructed or programmed by these binary codes. All matter, all complexity, all the myriad things, are based on a binary system of energy fields: right-spin and left-spin, or positive charge and negative charge. The combinations of these two codes in infinite number of arrangements define the programming by which every size of structure in the universe is created.

I conjecture that as the universe's "bits" are the energy fields, i.e., the fundamental particles of -1 charges and +1 charges, "bytes" are formed by chance encounter; and then, in random combinations of these elementary "bytes", more complex particles form through the billions of years of celestial activity, a process we eventually call "evolution".

In order to illustrate what I mean, I will review what scientists believe happened at the moment of the Big Bang, and how the basic elements or elementary particles were formed. Although scientists are still searching, eventually they might discover or come to this conclusion that the very original fundamental particle had been nothing but a simple singular energy field.

5. Big Bang and Formation of Particles

According to the Big Bang theory, a widely accepted model of how the universe began among scientists, the universe started from a singularity.⁹ No one knows what a singularity is or where it came from, but the accepted notion is that singularity is at the core of black holes, where under intense pressure and temperature, intense gravitational force, matter is squeezed into infinite density. So the universe has begun from an infinitely small, infinitely dense and infinitely hot state, which is called singularity¹⁰.

This singularity is believed to have begun to expand some 13.8 billion^{11,12} years ago at a very rapid rate, thus causing the universe to cool and result in its present continuously expanding state. Contrary to general conception that the Big Bang was an explosion rapidly expanding to form our present universe, English astrophysicist Arthur Edington (1882-1944) proposed that it was the singularity that was blown up like a balloon to become as large as our present universe, so the singularity did not appear in space, but space began inside the singularity^{13,14}.

Astrophysicists who believe in the Big Bang theory say that after the Big Bang, as the universe started to cool due to rapid expansion, "pure energy" was converted into subatomic particles. Therefore, it is an accepted scientific fact that the singularity could not have been anything but pure energy. The Big Bang merely released energy. Matter only came into being as rapid cooling occurred, when energy fields encountered each other and randomly combined.

In Einstein's hypotheses, energy and mass are analogous,

and mass can be expressed in terms of energy. Albert Einstein, Louis de Broglie¹⁵, and many other scientists hold that all particles also have a wave nature. De Broglie in his hypothesis said that "light contains particles which are concentrations of energy incorporated into the wave, which suggests that all particles, like the electron, must be transported by a wave into which it is incorporated." De Broglie also conjectured that electrons have internal clocks, and that this internal "clock" contributes to the mechanism that guides this particle through its pilot wave. He further said that light is the concentration of energy incorporated into wave¹⁶. I then propose that the "internal clock" de Broglie referred to is the same as the digital energy-field program formed inside the electron.

According to Stephen Hawking¹⁷, one hundredth of a second after the Big Bang the temperature must have been 100 billion degrees, and the universe contained photons, electrons and neutrinos along with their anti-matter counterparts, and some protons and neutrons. In three minutes, the temperature dropped to 1 billion degrees, and protons and neutrons combined to form the nuclei of helium, hydrogen and other simple elements. It would take thousands of years for some of these particles (protons, neutrons, and electrons) to combine and form other atoms, the rest of the so-called the building blocks of matter. The first element produced was hydrogen, along with traces of helium and lithium. Eventually, clouds of hydrogen would coalesce through gravity to form stars, and the heavier elements would be synthesized either within stars or during supernovae¹⁸ cycles and collisions.

Therefore the beginning of evolution was 13.8 billion years ago, when the energy of the singularity began to release and expand and, under the new conditions of lower temperature and lighter density, began to configure the elements as we know them today.

The single energy fields released from the original state must be considered "the elementary particle". The elementary particle must be the single energy fields of binary nature: either a negative charge or positive charge.

These single energy fields, once released, needed nothing more in starting the evolution which is determined solely by its initial state, requiring no further input.¹⁹On their ultrahigh speed journey, they collided at random and combined by chance in digital combinations to form the first particles, such as photons, electrons, neutrinos, protons and neutrons, just like the binary digits in computer programming combining to form numbers and letters of alphabet (through the translation of bytes by ASCII code into alphanumeric characters). If we believe that these basic energy fields combined to form lifeless physical elements, then they must have also formed the elements and cells for life forms-like proteins, acids, etc. The only difference is that the universe created elements by random formations and chance, whereas computer program bytes are created by human design.

6. Computers Work on a Digital Binary System

The basic binary structure system has lasted from the very beginning of computer technology and the simplest operating systems until now, with the most sophisticated programs of artificial intelligence, robotics and space programs still being based on the two basic elements of 0 and 1, or off and on. This element, this "bit" (short for binary digit), whether the On or Off variety, is the only message that computer processing units (CPUs) and transmission systems understand. [In Morse Code, the first system of communication based on electrical signals, one only transmits "short" and "long" signals in various combinations, each meaning a letter of alphabet or a number from 0 to 9, like (- . -) meaning K, (- - ...) meaning Z, etc.]

Larger units of information are defined as multiples of bits, such as byte (8 bits), kilobyte ($2^{10} = 1,024$ bits), megabyte $(2^{2^0} = 8,388,608 \text{ bits})$, etc. Computers process bits in groups of 8 bits or more called a "word". The number of bits in a word in more advance computer models has increased from the original 8 to 80 bits or more. The early computer programs were "written" on plug boards with circuit jacks arranged across and vertically. Instructions to the processor were designed by physically plugging program wires into the jacks, in order to connect to sensors behind the boards and complete the selected circuit. I personally had experience working with plug boards, an extremely tedious task to program a simple function. But still today, in order to tell a computer what to do, you must instruct it with a vocabulary based on only two digits. To spell my name Kourosh, I must tell the processor:

(for K:) 01001011 (for o:) 01101111 (for u:) 01110101 (for r:) 01110010 (for o:) 01101111 (for s:) 01110011 (for h:) 01110011.

It takes 56 digits to spell my first name. One can imagine how many of these 0 and 1 codes must be given to a computer processor to write a book or create a complex program.

I believe that all creation is formed, and everything living or not is instructed to be what it is, by means of digital codes in forms of positively and negatively charged energy fields.

7. Smallest Elements Discovered

From the ancient times, philosophers and scientists have been pondering what the smallest particle in nature might be. The predominant belief was that matter was made from water in three forms—gas, liquid and solid—that could not be destroyed. They only comprised other forms of matter by means of various combinations of these three essential forms, in different proportions.

As far as we know and tend to believe, it was $Democritus^{20}$, who lived in Ionia, (then part of the Persian Empire) in the fifth century BCE who first coined the word

"atomos" to describe the smallest particle in nature. They were theorizing, back in about 400 BCE, at how far can one break or cut an object into smaller pieces. Democritus conjectured that there must be an end to the cutting and fragmenting, and that there is a fundamental particle beyond which further division becomes impossible. He called that particle an atom.

Aristotle rejected Democritus's theory by presenting his own atomic theory. His was that there are only four elements—earth, fire, air and water—and that all these elements had a kind of "atomos" as the smallest unit, which made up all the other matter found on Earth. Aristotle's atomic theory was more real to touch, and people began to believe him, dismissing Democritus's theory²¹.

Atomic physics research during the first thirty years of the 20th century discovered elements as small as one hundredth of a millimeter. Then quarks were discovered. Since then much progress has been made, discovering particles much smaller than 0.01 mm. It is now known to scientists that particles as little as 1 atometer (10^{-10} mm) exist. Stephen Hawking thinks there is a limit to how far down we can go in size²².

If we want to understand the inner structure of the atom, we must take it apart and study its inner parts: there are three types of elementary particles discovered, which are called fundamental objects by quantum theory, that is, they are not composed by other particles and have no measurable internal structure. Elementary particles are classified according to their spin. Fermions have halfinteger spin while bosons have integer spin. Many families and sub-families of elementary particles exist, and all the particles of the Standard $Model^{23}$ have been observed, with the exception of Higgs-boson²⁴. I believe that they will eventually end their search with the finding of the absolutely smallest element of singular energy field from which all these subatomic particles are made of, and that this field will be nothing more than an energy field of positive or negative charge.

8. Conclusion

The smallest or most elementary particle, of which the universe is made, is an energy field with the positive or negative charge initially released by the Big Bang burst of energy. These energy fields were released into the space under infinite force from an infinitely compressed state. They traveled through open space at extreme speeds and collided along the way with each other, combining and recombining into variegated random digital arrangements of (+) and (-), many forming larger particles of various characteristics.

Therefore, assuming everything is made of single simple fields of positive and negative energy, arranged in random combinations forming trillions of different larger particles²⁵, we then must be able, given time and technology, to identify the "programs" of energy field combinations that make up atoms and molecules by reverse engineering,

pretty much like breaking down a computer program to understand the code of its basic digital words. Once we access the original "words" of particles, modification and manipulation of their more complicated structures would not be impossible.

The technology might be far past the foreseeable future, but it is definitely a possibility. It is not necessary to "see" the elementary particles that form atoms, just to be able to detect the engineering design of their digital structures. The next step would be to change the characteristics of a structure by injecting electromagnetic charges into the "digital arrangement" of energy fields, in order to redesign them into some other particle.

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- [5] John Dalton (1766-1844), English physicist who pioneered development of modern atomic theory.
- [6] Ernest Rutherford (1871-1937) of New Zealand, a physicist who is known as the father of nuclear physics.
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- [24] Inception of this idea was in summer of 2006 &2009, in solitary confinement of Evin prison where my preliminary formulations were confiscated. This article is reconstruction of the idea without formulation pre-published May, 2012, before Higgs-boson was said to have been "seen" in CERN.
- [25] The human body is composed of 1,000 trillion trillion particles forming some 10 trillion molecules in each cell, and about 200 million cells in body: John von Neuman in "Computer and Brain".