Energy spectrum for elementary particles

BoYu chen
Hsinchu, Taiwan
boypatrick.tw@gmail.com

Abstract

This is an unified theory by using an energy model to explain mass, called the energy spectrum. To explain this theory, a multidimensional concept will be projected on plots. The energy spectrum model can explain from quantum level to universe level physic behaviors.

Keywords: elementary particles, time, mass, blackhole, electrons, magnetic field, quantum entanglement, time jump, galaxy rotation curve, universe shape, gravity, energy spectrum, unified theory, energy information (E_i), energy density(E_d)

1. Theory

1.1 Energy model for elementary particles

The mass is the combination of positive energy information (E_p), and negative energy information (E_n). The total energy is $E = mc^2$, which is shown on FIG.1(a). The elementary particle is a pair of positive and negative energy combinations, which is shown on FIG.1(b). The mass is like a dot for describing a 3-dimensional world. The general particles are sets of energy information (E_i), and E_i stay on a stable track (3-dimensional track) with period, which is shown on FIG.1(c).

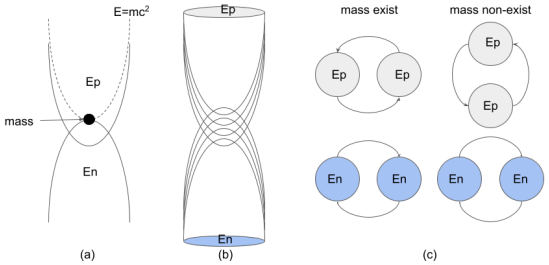

FIG.1 Energy model of Mass (a) the average of E_p/E_n is mC^2. (b) E_i is a combination of E_p and E_n. (c) E_p and E_n have regular 3-dimensional tracks and periods. Mass exists only if E_p and E_n are in a certain state.

For example, if one particle has 2 electrons, they are not independent events. They are part of E_i for describing particles. The mass existence is when E_p and E_n overlap. Since E_p and E_i spin in different directions, the mass exists when phase equals 0 and 180 degree, and mass doesn't exist when phase equals 90 and 270 degree(please notice that it is not the two dimensional tracks. It is only for understanding the concept easily). The particle, which has 2 electrons, is an E_i event or combination. So, if one electron has been observed, then you can confirm another one's state and location.

1.2 Mass and time

In general concept, time is a normal vector of a three-dimensional coordinate system. So, living in a three-dimensional coordination system cannot detect time. if a three dimensional system is projected on a paper, assume it is x- and y- axis. The time will be the z-axis, which is a normal

vector of a two-dimensional system. Actually, if papers, which are mass in a three dimensional system, are stacked together. The z-axis is still mass, which is shown in FIG.2(a). Time actually is the density of energy information (E_d). The integration of E_i is how positive mass feeled time, which is shown in FIG.2(b). So, if E_d is high, it only needs fewer units to achieve the same amount. It means time has become slow. This implies time and space do not exist, and they are descriptions of E_d and E_d variation.

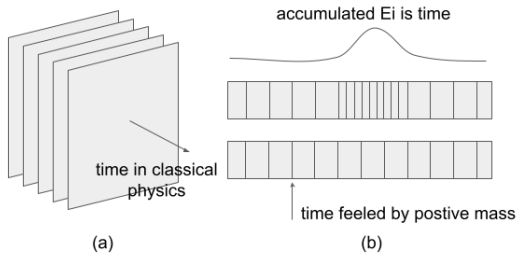

FIG.2 Time definition. (a) The normal vector of a 3-dimensional system is still mass instead of time. (b) The definition of time is the integral of energy information, which is E_i.

1.3 Blackhole ejection

Blackhole is an extreme high E_d, which is shown on FIG.3(a). The energy in any dimension has the tendency to move to a lower level. We use an energy bubble as an example, the blackhole is combining a lot of E_i, which is mass (FIG.3(b)). When it starts to spin, the E_d of the energy bubble becomes non-balance. When the ring of E_d is increasing (time event) to break the balance of the bubble, it will squeeze out E_i, which is mass, on poles or low E_d regions close to poles (FIG.3(c)). When the ring of E_d becomes weaker than bubble E_d, it will attract E_i again. The blackhole's E_d and E_i (or mass) and ejection period could be calculated.

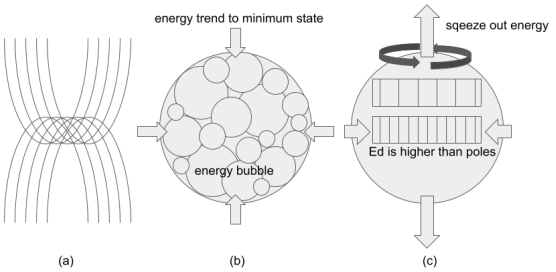

FIG.3 Blackhole model. (a) Black holes are composed of large amounts of E_i. (b) Energy bubble mode for blackhole. The minimum energy state is a ball shape. (c) The mass is close to a dot, but E_i is a huge bubble. The fastest location close to light speed will have higher E_d than poles. the ring of E_d will squeeze out the E_i.

1.4 Electrons and magnetic field

Using the same theory for particle level. Assuming an electron is a few pairs of E_p and E_n, which is shown on FIG.4(a). When an electron moves at light speed, its E_d will be higher than E_d around. The small energy bubble starts to squeeze out the E_i because the total time event must be equal. The squeezed E_i will disturb the surrounding E_d states, which is the magnetic field (magnetic is not an elementary particle), which is shown on FIG.4(b).

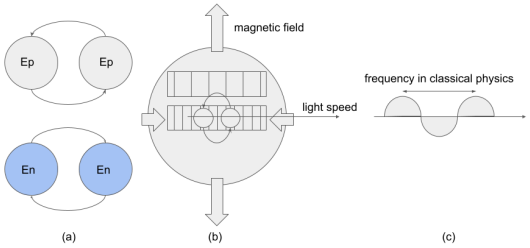

FIG.4 Electron model. (a) To assume an electron has simple pairs of E_p and E_n. Mass exists only if E_p and E_n are in a certain state. (b) When an electron is moving at light speed, it will squeeze out E_i by existing state. (c) The track and period of E_p and E_n will decide the wavelength.

The only difference is that E_i is varied by E_p and E_n phase in quantum scale. It will have a regular behavior, which is based on E_p and E_n tracks and

periods, which is called frequency or wavelength in classical physics (FIG.4(c)). Matter waves are the same event based on this theory. The movement of elementary particles only generates a single wave or no wave.

1.5 Quantum entanglement

If we discuss more complicated particles, which is described by 2 pairs of E_i (FIG.5(a)). if we split the particle into 2 particles. Since space doesn't exist, the energy information(E_i) for a single event (particle) never changes, which is shown on FIG.5(b). They just change the E_d, which is the quantum entanglement. The quantum entanglement never disappears. However, when E_i (separated particles) move into another E_d, a small E_d variation will let them become different time events, which is shown on FIG.5(c). If we want to stabilize quantum entanglement, it should be speed up to light speed of controlled speed. The larger mass, bigger E_d, should have more stable quantum entanglement.

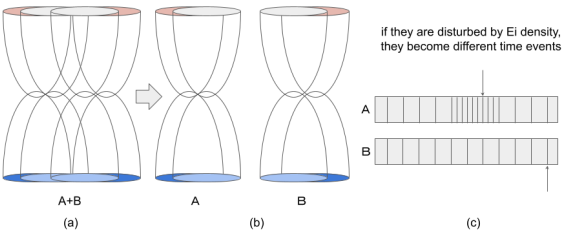

FIG.5 Quantum entanglement model. (a) The particle with 2 sets E_i combinations. (b) E_i, like a digital code to describe a particle, never disappears, even if they are split. (c) Separated particles(E_i) are susceptible to surrounding energy density(E_d).

1.6 Time and space jump

The existence of mass is an E_i set, which is shown on FIG.6(a). If out of E_i range, the mass no longer existed, which is shown on FIG.6(b). The Ei should create entanglement in the E_i range, and penetrate different E_d can move into the different time events, which is time jump. The limitation is not leaving E_i range. If we can achieve a small range time jump, the movement in every time jump is a space jump, which is shown on FIG.6(c).

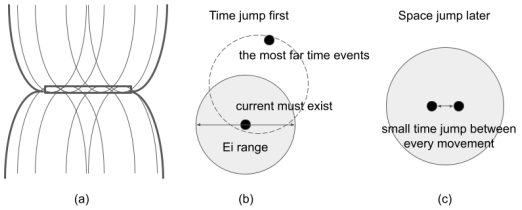

FIG.6 Time and space jump. (a) mass/matter is just a time event (E_d). (b) E_i must be entangled in the existing E_i range. Otherwise reality will not exist. (c) Continuous movement between repeated and small backward time jumps, which is a space jump. It can go faster than light speed.

1.7 Galaxy rotation curve, universe shape, and gravity

If we apply the E_d model on galaxy behavior, the time of the target galaxy and observer are different. Inside the galaxy, the time is proportional to $1/E_d$, which is $1/m_{total}*C^2$. The edge of the galaxy needs to integrate more time events (E_i) to equal the total E_i of the center .

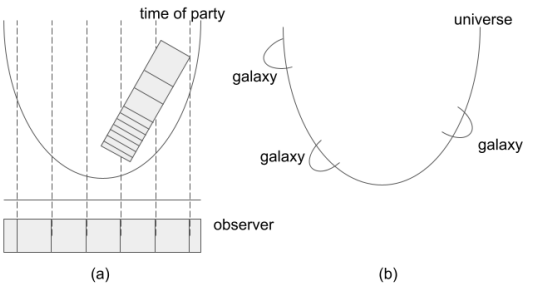

FIG.7 Galaxy and universe shape. (a) The E_d of the galaxy edge is lower than the center. It needs to integrate more time events (E_d) to equal the total E_d of the center. The observer only feels all of them are in the same time event. It looks like to project a parabola on a plate. (b) The Universe is a huge E_i set, which is the same as the galaxy. It is a giant parabola, and galaxies are small parabolas on the surface.

Please notice that space doesn't exist. To observers, it looks like a galaxy projected on a parabola, which is shown on FIG.7(a). The speed and space are E_d variation, which is time. The universe also didn't exist, which is an E_d set or time event. If we try to describe the universe's shape, it is just like a giant parabola (E_p shape) with lots of pinholes (galaxies), which is shown on FIG.7(b). If we can measure the relative velocity of galaxies, it should meet this model as well. If we go to the quantum level, it is like a time trap of $1/C^2$, which is gravity.

1.8 Energy spectrum

If a particle's mass is level of E_i, it means energy levels are definitions of all elementary particles. This is an energy spectrum to define E_i, and the mass is the visible spectrum for humans (or reality), which is shown on FIG.8. The level of E_i is a similar concept of wavelength. The E_i level less than visible spectrum is negative mass particles, which must have more than 1 kind of elementary negative particle. The negative mass must have more combinations of E_i and they also have quantum entanglement.

The reality can be expressed by

$$\frac{KeT}{R^3}$$

Ke is kinetic energy (dynamic energy cloud) of particle sets, T is the time event quantities, and R is for dimension (R^3 for 3-dimension world), which is shown on Fig.9. It can be imaged as energy bubbles and it is proportional to mass, for current physical definition.

T, time event, is not zero when energy sets create entanglement or oscillation. If energy bubbles are screezed one dimension and expanded to another dimension, it will start to create "mass" (like phonon).

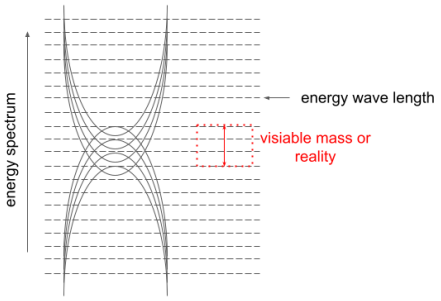

FIG.8 Energy spectrum. Only a few E_i levels are visible mass or called reality. Less than positive particle energy information levels are negative particles.

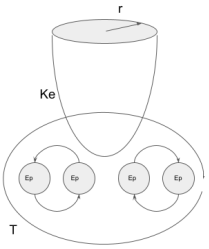

FIG.9 Each matter or reality can be expressed by contained energy cloud Ke, and time event quntanty. 3 dimensional particles use R^3. It can be imaged as an energy bubble.

In other words, if different energy bubbles generate a particle, the charge radius will be changed. By using electrons or muons to measure the proton's charge radius should have different numbers.

1.9 Half-time and Force

The energy bubbles are not a close loop. Every energy set is just like lego, they can exchange energy sets. However, energy bubbles have different time events, and they must meet each other by common multiples, which is shown on Fig.10. in order to balance their own time events, T, the bubble must shift to one direction. If the material can be turned into a short half-life isotope through the interface, it should generate a force.

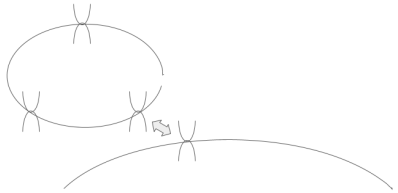

FIG.10 Energy bubbles exchange the energy set when they meet a common multiple time period.

2. Conclusions

This theory explains the quantum and macrocosm. It also discloses a few possibilities of new physics applications and technologies. The heavier the mass, the more stable the quantum entanglement, and we can use its properties to generate magnetic and electric fields as generators, not just as signals. The matter can be generated in an oscillated energy field. The controllable isotope can generate force as an engine, and cesium is a good candidate.

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