The time prior to the Big-Bang

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Paper 4

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Abstract

The law that states:

''Matter can be converted to Energy and vice versa''

Needs also incorporate that:

''Anti-Matter can be converted to Anti-Energy and vice versa''

With this assumption, the Universe can be modelled with precisely equal amount of Energy and Anti-Energy prior to the Big-Bang which can cause the formation of a single particle that would be the building block of the entire Universe from matter to forces of nature in different manifestation.

Hence could be calculated and identified as the quantum gravity.

This particle has the values of Planck [1] mass, time frequency and distance.

In this paper the calculation and the different manifestation of this particle has shown to be precisely in agreement with theory of the Hot Big-Bang and in accordance with the observations in particle physics, cosmology and the laws of nature.

The quantum gravity particle is the force behind the expansion of the universe [2], the unification of the forces of nature [3] and Wave, Particle and Luminiferous aether trinity of the light [4].

This particle is made of energy encapsulating precisely equal amount of anti-energy in the form of perfect sphere or the most symmetrical shape in the Universe.

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Text

In the absolute vacuum the pairs of equal amounts of energy and anti-energy come to existence in fractions of a second and form the space this space is in every direction. The pairs of energies and anti-energies are trapped in this space (see fig 1),hence using the assumption that **energies would attract each other and anti-energies would attract each other while the enrgies and anti-energies will repel each other** (see fig 1 to 10) and one anti-energy becomes encapsulated by the energy as the attraction of the like energies creates the spherical particle, this will continue until the gravitational force towards the centre of this creation pulls the particles toward the centre and any pairs outside of this gravitational collapse, ie the rest of the pair produced are annihilated by pushing each other to infinity.

At this stage the mass of the universe by definition is equal to:

$$M_u = Km_{pl}\left(\frac{c^4}{G}\right)^2 \quad M_u = 3.18941\times 10^{80} Kg \,.$$

Where K is the constant of proportionality. $K = 1m^2 Kg^2 S^{-4}$

The spherical Planck's (Photon) particle has continuous energy at the surface which results in a spin with the speed of light c, hence wave-particle duality.

It follows that:

$$\lambda_{pl} = 2\pi R_{pl}$$

$$E_{pl} = m_{pl}c^2$$

$$E_{pl} = h\upsilon_{pl}$$

$$\upsilon_{pl} = \frac{c}{\lambda_{pl}}$$

The unit mass or the unit energy on the shell is:

$$\textbf{Unit Mass or unit Energy} = \frac{m_{pl}}{4\pi R_{pl}^2}$$

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The gravitational repulsion of the anti-energy in the core and energy on the shell is:

$$F_G = \frac{-G(-m_{pl})\left(\frac{m_{pl}}{4\pi R_{pl}^2}\right)}{R_{pl}^2}$$

Therefore:

$$\boxed{F_G = \frac{Gm_{pl}^2}{4\pi R_{pl}^4}}(I)$$ **Equation (I)**

Acceleration at the surface is: $a = \frac{v^2}{R_{pl}}$ and $v = c$ therefore:

$$\boxed{a = \frac{c^2}{R_{pl}}}(II)$$ **equation (II)**

Newton's law states that : $\text{Acceleration} = \frac{\text{Force}}{\text{Unit mass}}$

Therefore:

$$\boxed{a = \frac{F_G}{m_{pl}/4\pi R_{pl}^2}}(III)$$ **Equation (III)**

Combining equations (II) and (III) we obtain:

$$\boxed{\frac{c^2}{R_{pl}} = \frac{F_G}{m_{pl} \diagup 4\pi R_{pl}^2}} (IV)$$ **Equation (IV)**

Substituting from equation (I) in equation (IV) for F_G .

$$\frac{c^2}{R_{pl}} = \frac{Gm_{pl}^2 \diagup 4\pi R_{pl}^4}{m_{pl} \diagup 4\pi R_{pl}^2} \rightarrow c^2 = \frac{Gm_{pl}}{R_{pl}}$$

Hence $\boxed{m_{pl} = \frac{R_{pl}c^2}{G}} (V)$ **Equation (V)**

Using $E = m_{pl}c^2$ and $E = h\upsilon_{pl}$

We obtain:

$$m_{pl}c^2 = \frac{hc}{\lambda_{pl}} \quad \text{----} \quad \lambda_{pl} = 2\pi R_{pl} \quad \text{----} \quad m_{pl}c^2 = \frac{hc}{2\pi R_{pl}}$$ so

$$\boxed{m_{pl} = \frac{h}{2\pi c R_{pl}}} (VI)$$ **Equation (VI)**

Substituting m_{pl} from equation (VI) in equation (V) we obtain:

$$\frac{h}{2\pi c R_{pl}} = \frac{R_{pl}c^2}{G}$$ hence $2\pi c^3 R_{pl}^2 = hG$ and $R_{pl}^2 = \frac{hG}{2\pi c^3}$

Finally:

$$\boxed{R_{pl} = \sqrt{\frac{hG}{2\pi c^3}}} \quad (VII) \qquad \boxed{R_{pl} = \sqrt{\frac{\hbar G}{c^3}}}$$

This is the Planck particle.

By inserting the values of the Universal constants we obtain:

$$R_{pl} = 1.61609 \times 10^{-35}\, m$$

$$\lambda_{pl} = 2\pi R_{pl}$$

$$\lambda_{pl} = 1.01542 \times 10^{-34}\, m$$

$$\upsilon_{pl} = 2.95238 \times 10^{42}\, Hz$$

$$E_{pl} = 1.95626 \times 10^{9}\, j$$

$$E_{pl} = 1.221 \times 10^{28}\, eV$$

$$m_{pl} = 2.17664 \times 10^{-8}\, Kg$$

$$\rho_{pl} = 1.23122 \times 10^{96}\, Kg/m^3$$

$$E = KT$$

$$T = 1.4169 \times 10^{32}\, K$$

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The centrifugal force:

$$F_{CF} = \frac{m_{pl}c^2}{R_{pl}} = \frac{E_{pl}}{R_{pl}}$$ Hence

$$F_{CF} = 1.21048 \times 10^{44}\, N$$

The gravitational mass $m_{pl} = 2.17664 \times 10^{-8}\, Kg$ always remains the same but the inertia mass or the energy of the God (Planck's) particle is inversely proportional to the radius of the photon (Planck's particle), and as the photon inflates like a perfectly spherical balloon due to the repulsion force of the energy and anti-energy (matter and anti-matter) inertia mass is reduced and space is formed, hence the energy compensate for the creation of space.

Therefore: $\text{Inertia Mass} = \frac{h}{2\pi cR}$

$$\text{Inertia Mass is proportional to } \frac{1}{R}$$

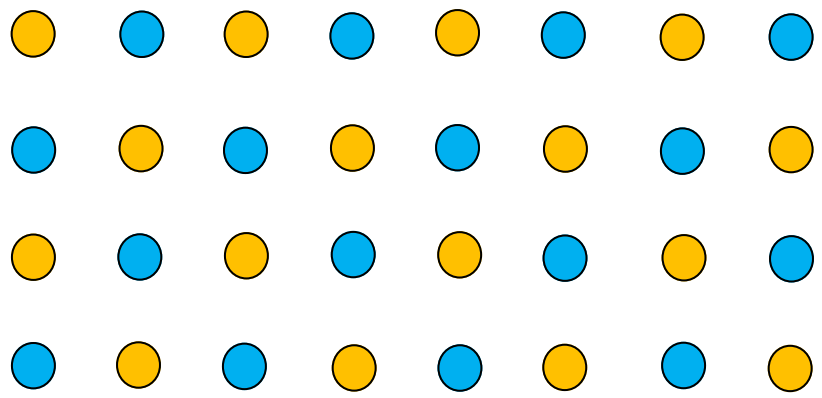

Figure 1

Energy and anti-energy prior to the Big-Bang

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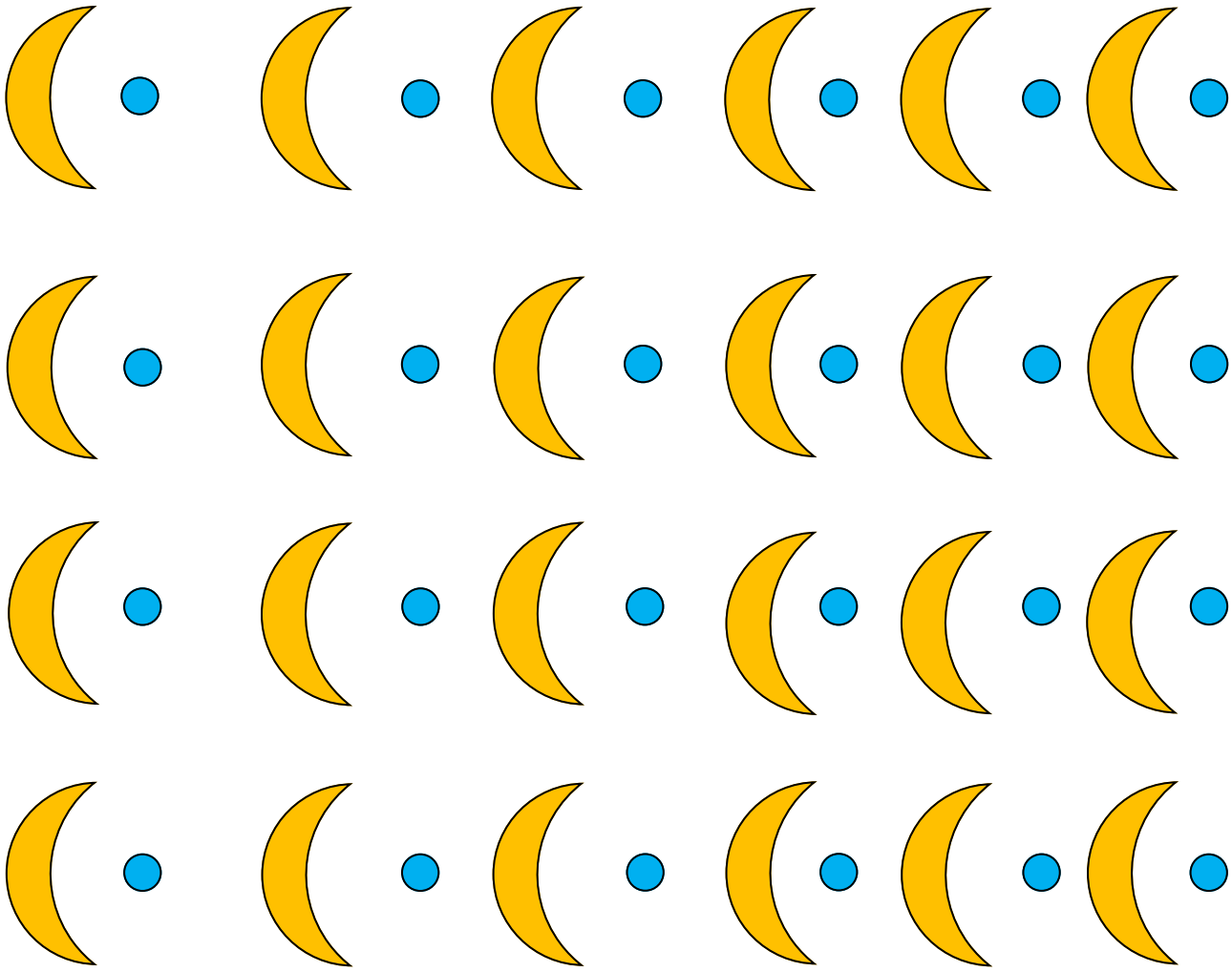

Figure 2

The force of repulsion forces one energy curve over the other

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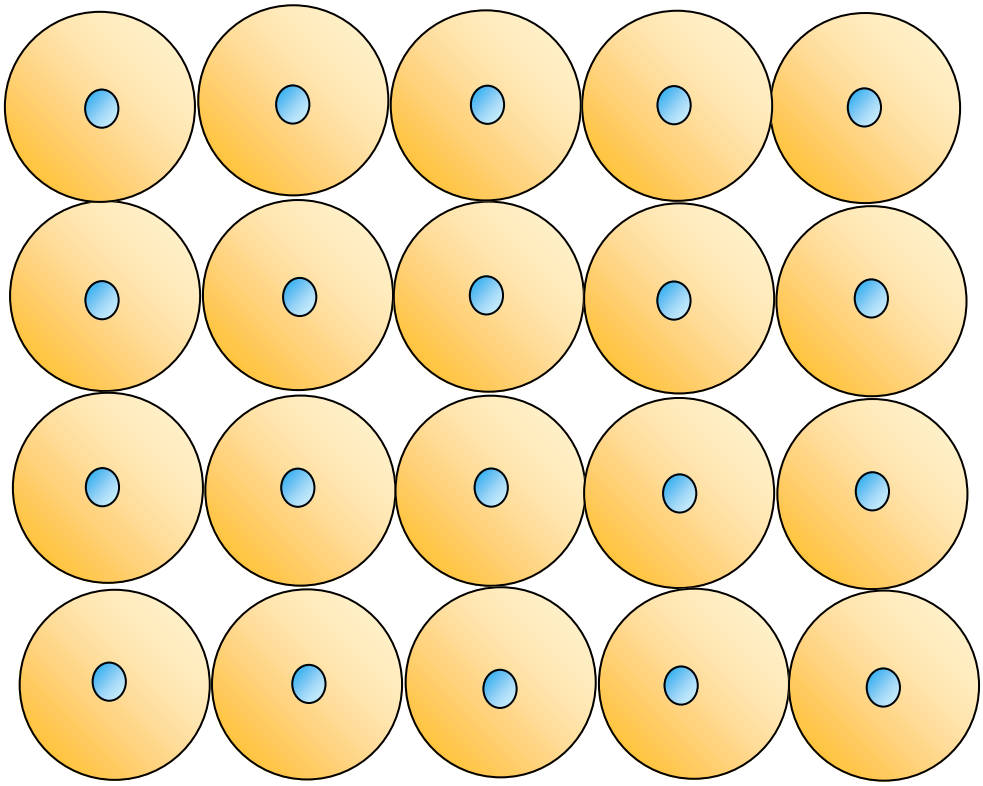

Figure 3

Final photon or Planck's (God) particle, one energy is encapsulated by the other and forming a perfect symmetrical sphere.

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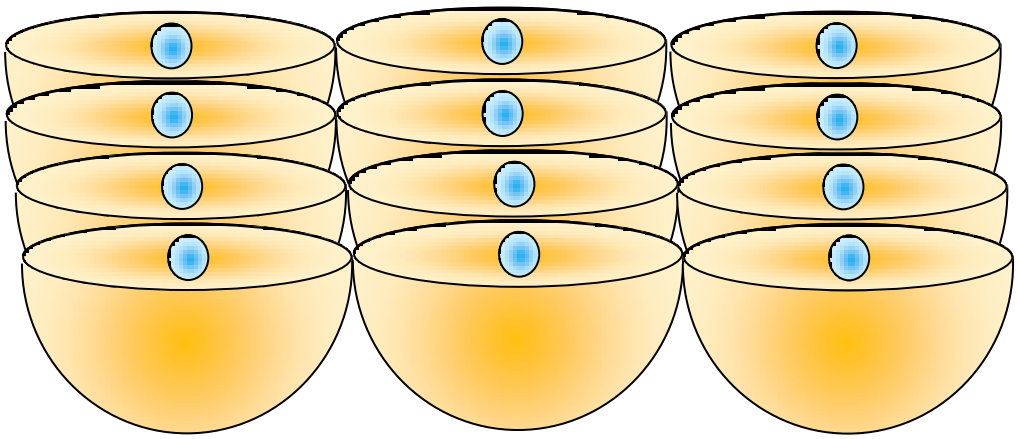

Figure 4

The inside of the particle

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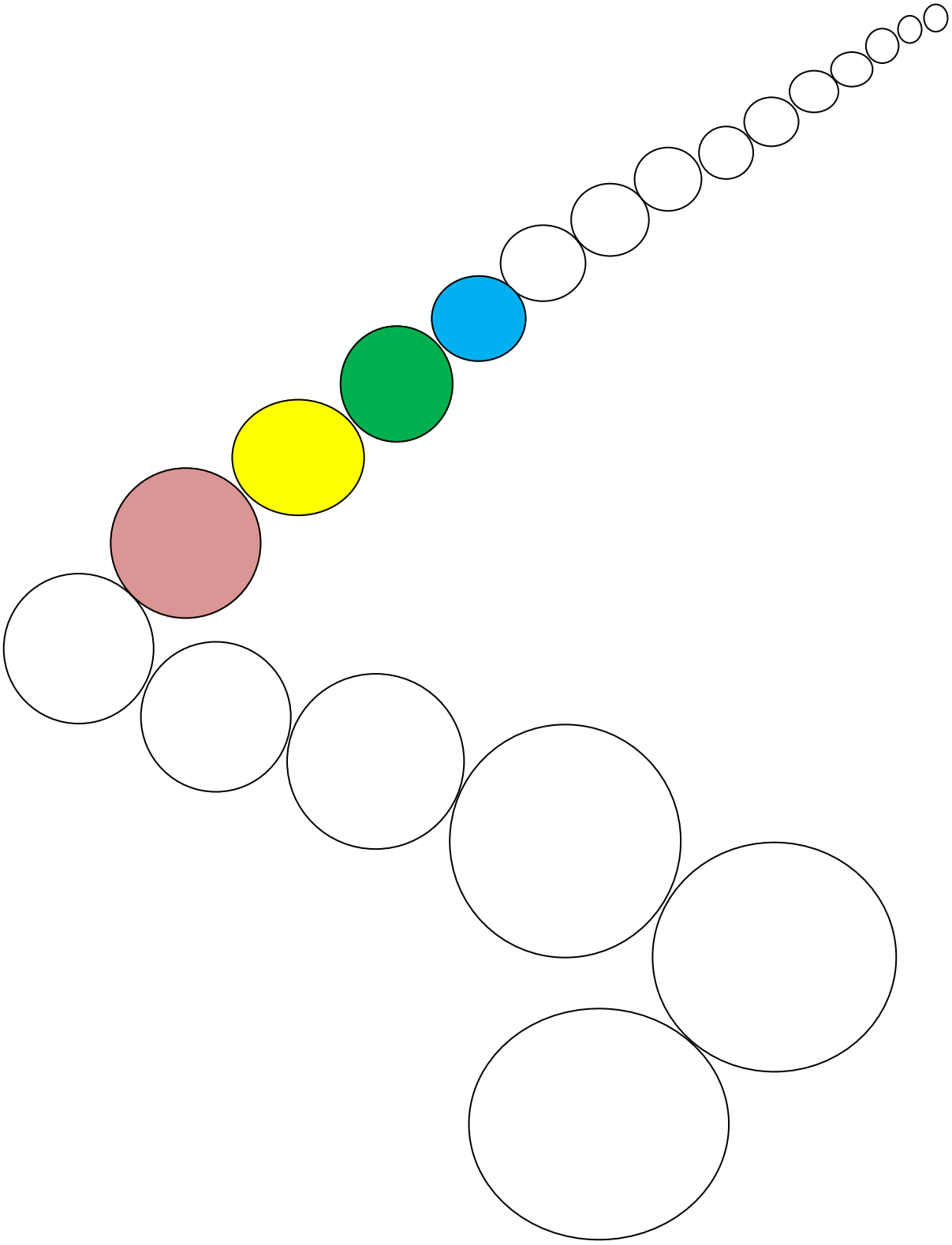

Figure 5_The photon particle.

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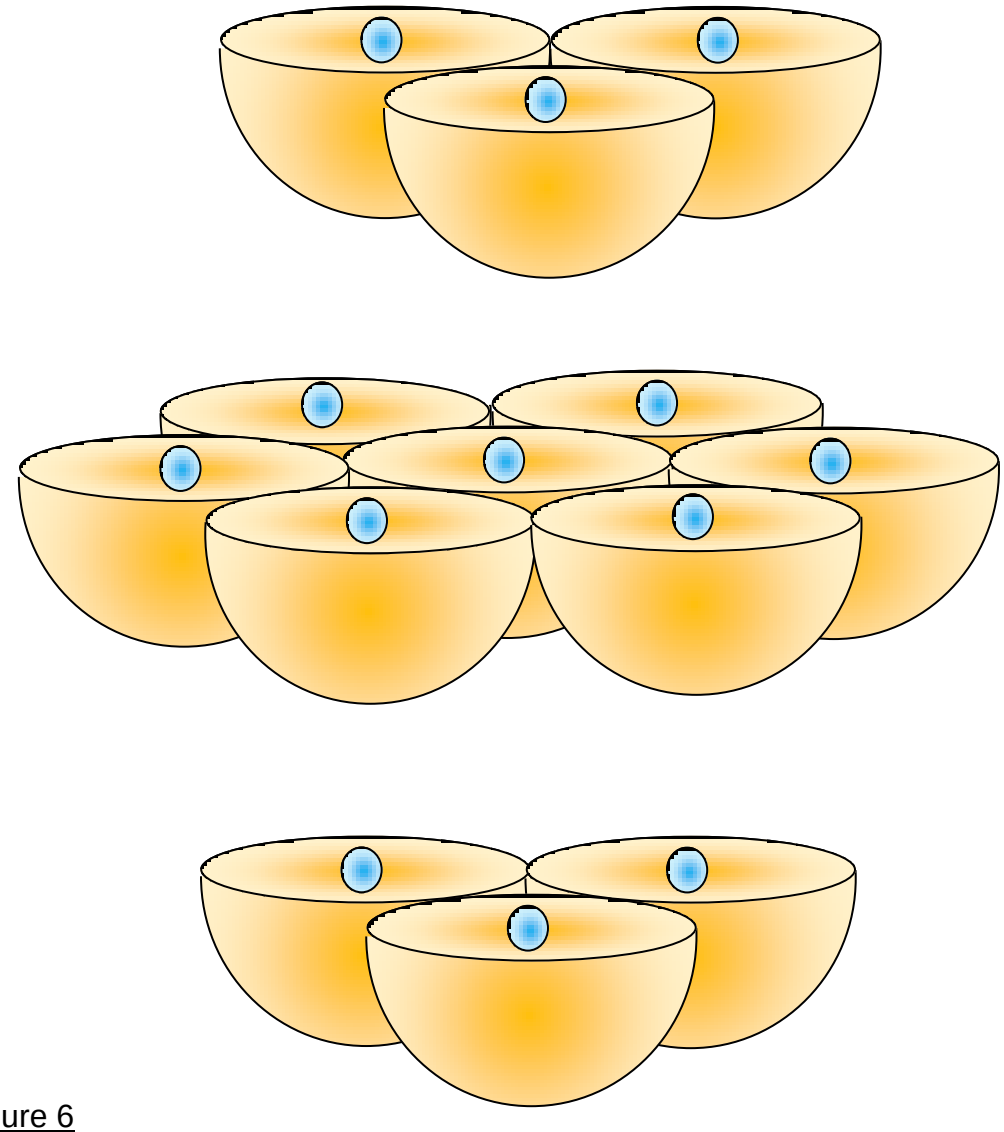

Figure 6

1st particle

The primary particle or the neutral electron.

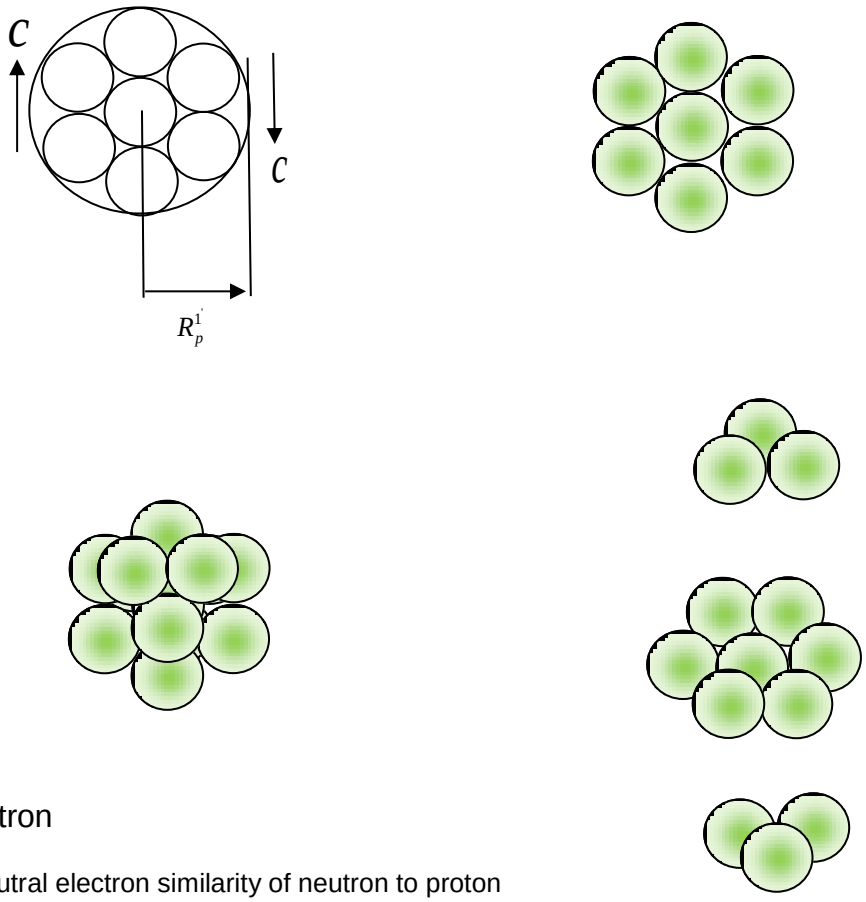

Figure 7 N-electron

Primary particle or neutral electron similarity of neutron to proton

$R_p^{1'} = 1.14904 \times 10^{-18} m$ $\rho_p^{1'} = 4.81751 \times 10^{28} Kg / m^3$

$\lambda_p^{1'} = 7.21966 \times 10^{-18} m$ $T = 2 \times 10^{15} K$

$\upsilon_p^{1'} = 4.15244 \times 10^{25} Hz$

$E_p^{1'} = 1.71731 \times 10^{11} ev$

$E_p^{1'} = 171.7 Gev$

$E_p^{1'} = 2.75143 \times 10^{-8} J$

$m_p^{1'} = 3.06138 \times 10^{-25} Kg$

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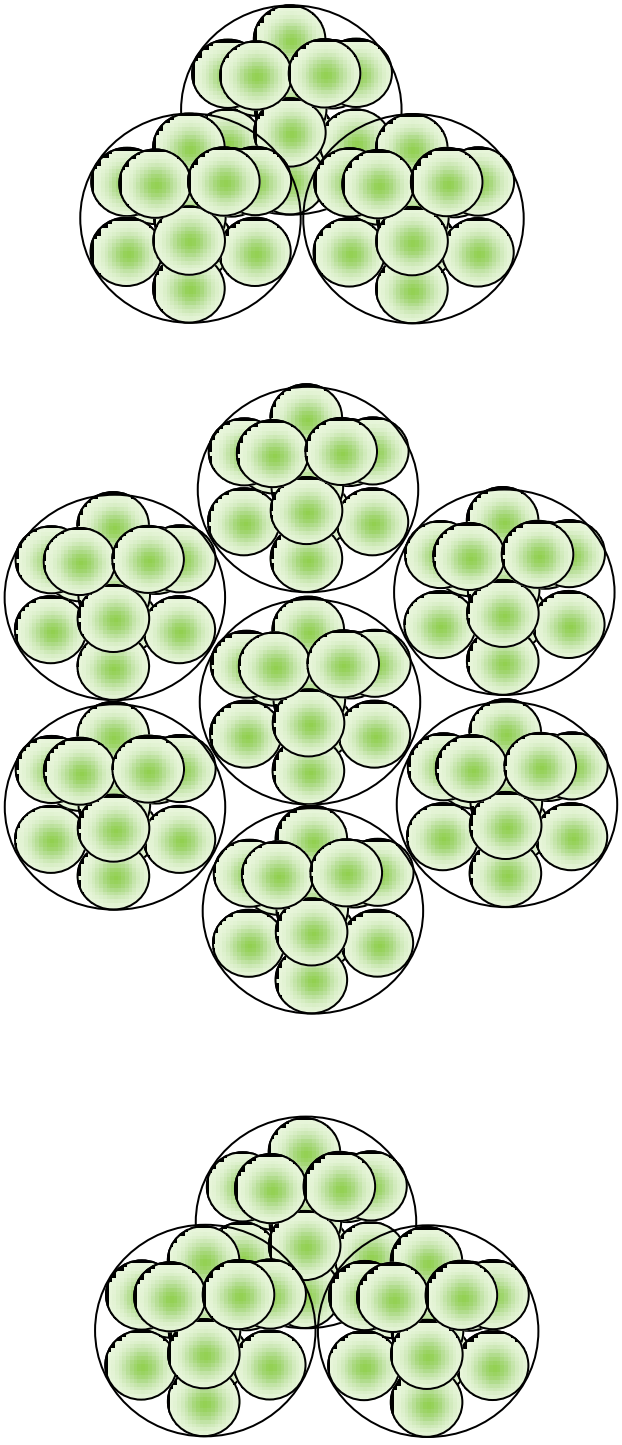

Figure 8

The neutron particle, which consists of 13 N-electron or 169 photons (Planck's particle).

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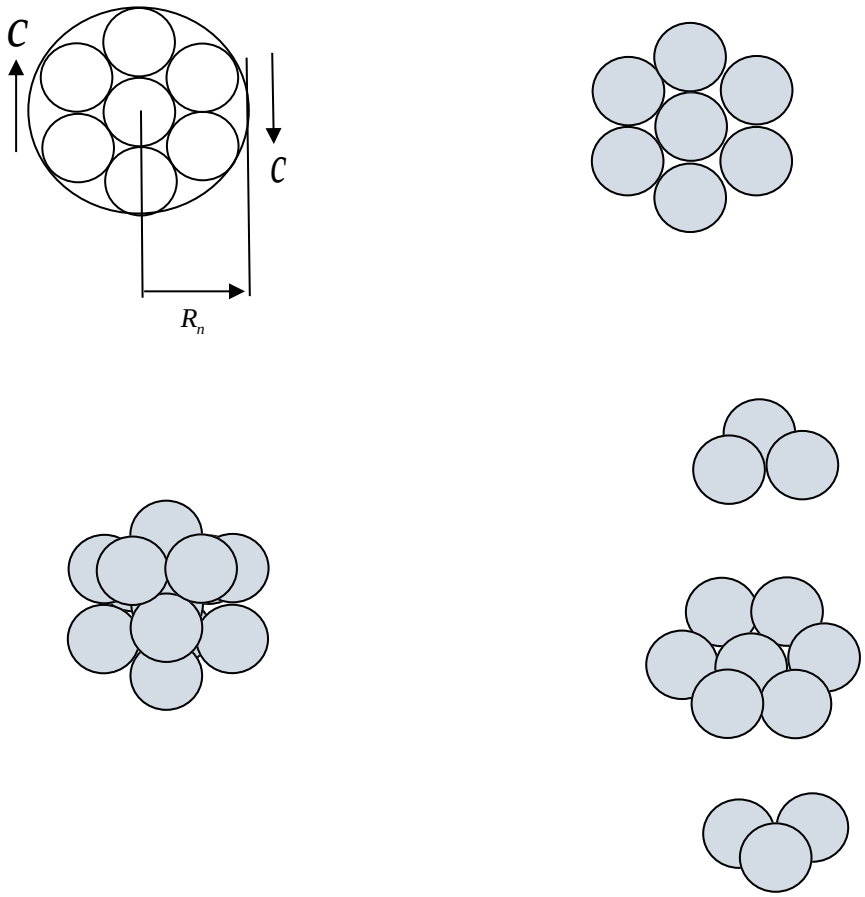

Figure 9

Neutron

$R_n = 2.10016 \times 10^{-16} m$

$\lambda_n = 1.31957 \times 10^{-15} m$

$\upsilon_n = 2.27189 \times 10^{23} Hz$

$E_n = 1.50536 \times 10^{-10} J \qquad E_n = 9.39579 \times 10^{8} eV \approx 1 GeV$

$m_n = 1.67495 \times 10^{-27} Kg$

$\rho_n = 4.31674 \times 10^{19} Kg / m^3$

$T = 1.09 \times 10^{13} K$

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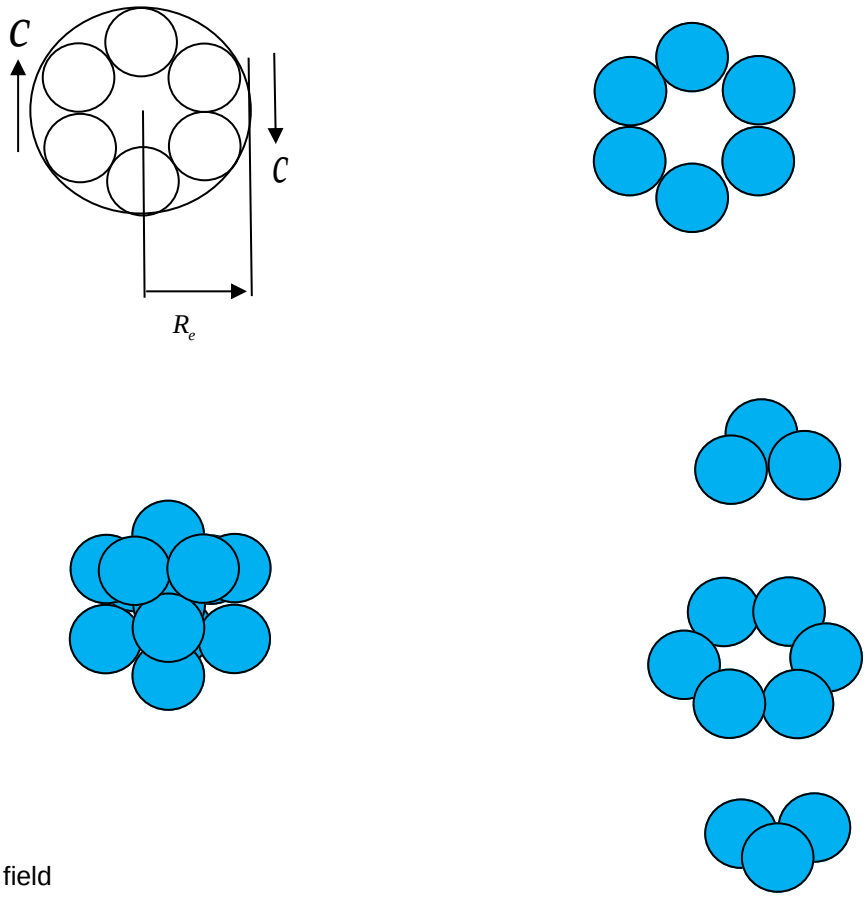

Figure 10

Electron and electron field

Electron field	Electron core
$R_{fe} = 3.86156 \times 10^{-13} m$	$R_e = 1.45246 \times 10^{-18} m$
$\lambda_{fe} = 2.42628 \times 10^{-12} m$	$\lambda_e = 9.12613 \times 10^{-18} m$
$\upsilon_{fe} = 1.2356 \times 10^{20} Hz$	$\upsilon_e = 3.28498 \times 10^{25} Hz$
$E_{fe} = 8.18711 \times 10^{-14} J$	$E_e = 2.17665 \times 10^{-8} J$
$E_{fe} = 0.511003 \times 10^{6} eV$	$E_e = 1.35856 \times 10^{11} eV = 136 GeV$
$m_{fe} = 9.109390 \times 10^{-31} Kg$	$m_e = 2.42185 \times 10^{-25} Kg$

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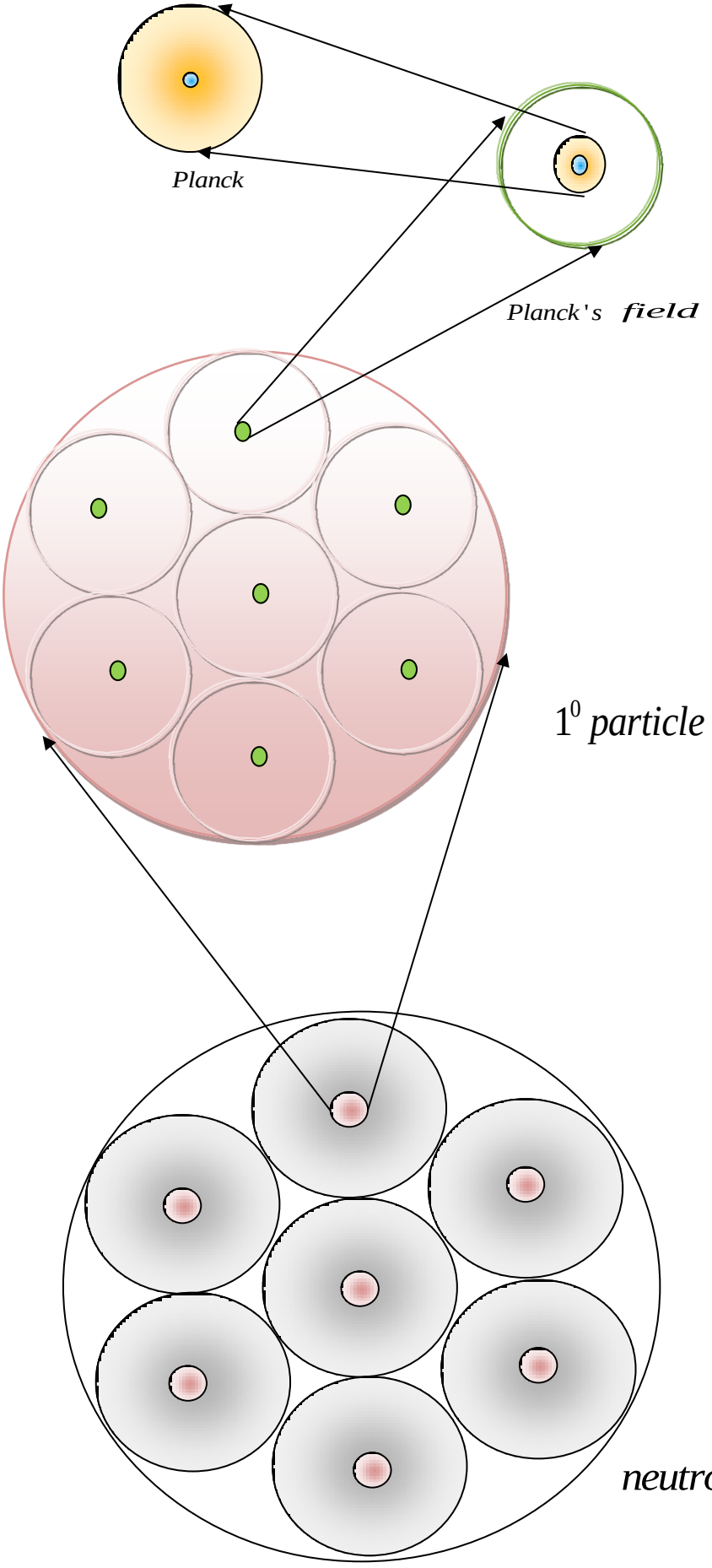


Figure 11

The time prior to the Big-Bang

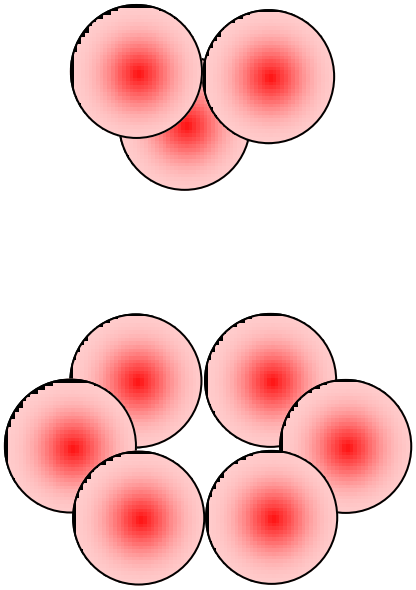
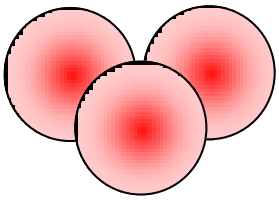


Figure 12

Proton



$R_p = 2.10308 \times 10^{-16} m$

$\lambda_p = 1.3214 \times 10^{-15} m$

$\upsilon_p = 2.26874 \times 10^{23} Hz$

$E_p = 1.50327 \times 10^{-10} J$

$E_p = 9.38276 \times 10^{8} eV \approx 1 GeV$

$m_p = 1.672614 \times 10^{-27} Kg$

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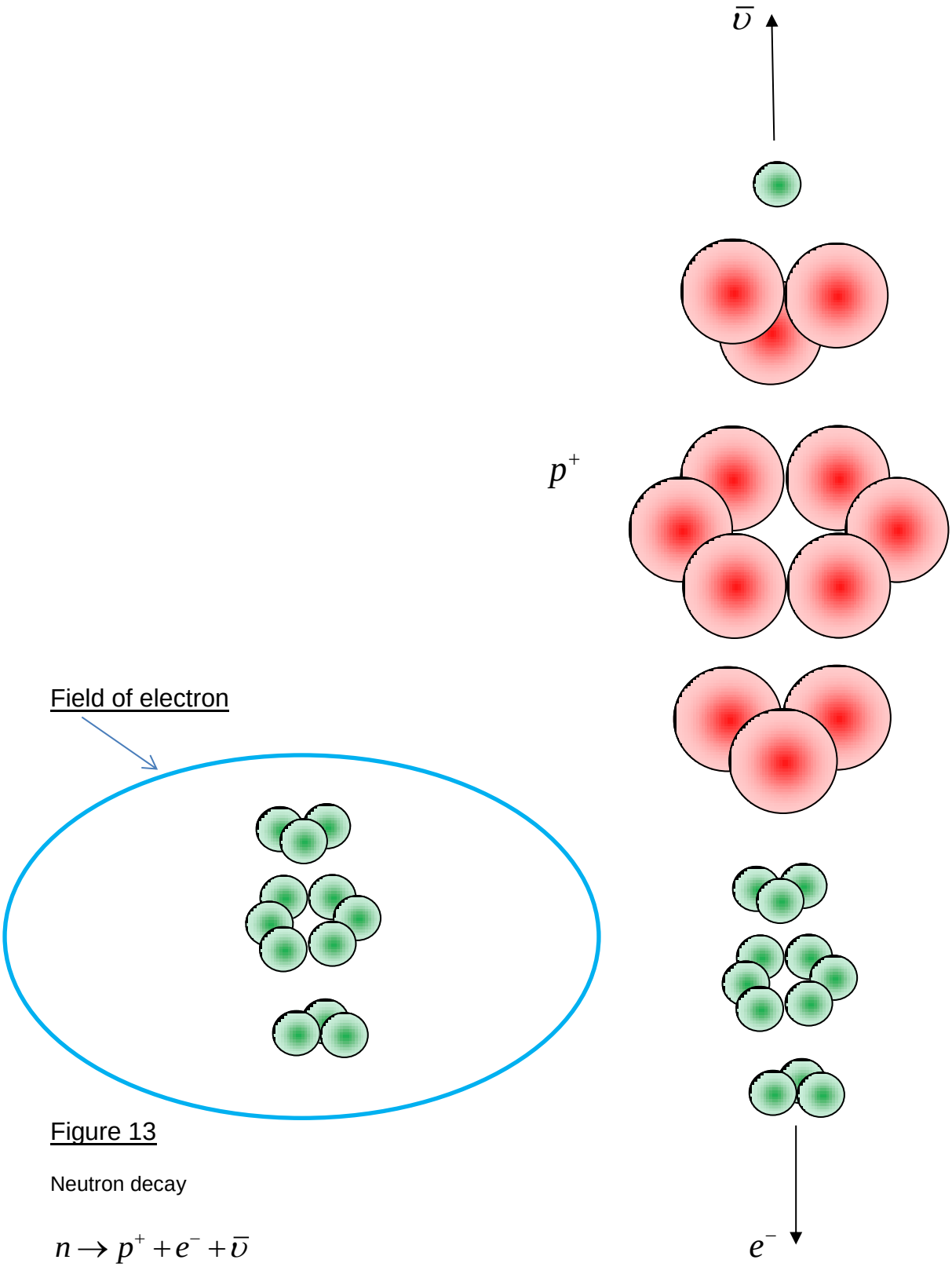

Figure 13

Neutron decay

$$n \rightarrow p^+ + e^- + \bar{\upsilon}$$

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1st stage

At this stage the number of Planck's particles or photons are:

$= 1.46529054 \times 10^{88}\ particls\ /\ photons$

The gravity carries to the point of rebound and the repulsion force between the energy on the surface and anti-energy in the core each photon will play the part of the inflation from this point onward.

Prior to the rebound the volume of the Universe is:

$V_{Univ} = 2.590446874 \times 10^{-16} m^3$ and a radius of: $R_{Univ} = 3.95453442 \times 10^{-6} m$

Approximately $R_{Univ} = 3.95 \mu m$

$M_{Univ} = 3.18941 \times 10^{80} Kg$

2nd stage

The inflation will carry on and the first particle of matter N-electron or neutral electron which is the primary particle is formed consisting of 13 photons(13 Plank's particles).

At this stage the numbers of the primary particles are:

$= 1.127146569 \times 10^{87} 1^0\ particles$ N-electron or nelectron.

At this stage the volume of the Universe is:

$V_u = 7.162661793 \times 10^{33} m^3$ with a radius of: $R_u = 1.195809351 \times 10^{11} m$

Approximately 398.87 light seconds or 6.6478957 light min

The Mass of the Universe at this stage is: $M_{Univ} = 3.450623963 \times 10^{62} Kg$

The Mass of the Universe now has become 18 orders of magnitude smaller by compensating for creation of space.

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3rd stage (neutron epoch)

The inflation carries on and then the neutron particles are formed out of 13 primary particles.

At this stage the numbers of the neutron particles are:

$= 8.670358222 \times 10^{85} neutrons$

At this stage the volume of the Universe is:

$V_u = 3.364207681 \times 10^{39} m^3$ with a radius of: $R_u = 9.295328224 \times 10^{12} m$

Approximately 31005.46379 light seconds or 516.7577299 light min or 8.612628831 light hours.

At this stage the mass of the Universe is: $M_{Univ} = 1.45224165 \times 10^{59} Kg$

The Mass of the Universe now has become 3 orders of magnitude smaller by compensating for creation of more space.

4th stage (neutron epoch repulsion prior to the Big-Bang)

At this stage the inflation carries on and when the neutrons are approximately

$d_{n-n} \approx 7 \times 10^{-15} m$ from centre to centre of the adjacent neutron apart.

At this stage the radius of the Universe is approximately:

$R_u = 150 \times 10^9 Km$.

Final stage (the Big-Bang)

This is the Big-Bang moment, the explosion of the most gigantic Neutron Bomb as it was first mentioned a century ago by Georges Henri Joseph Édouard Lemaître (French: 17 July 1894 – 20 June 1966 who was a Belgian priest, astronomer and professor of physics).

The explosion would have the freeze ratio of 1 to 6 of neutrons to protons.

The neutrinos (photons) of approximately 515 Gev as well as the elctrons decay each to 12 photons of approximately 300 Gev are the formation of the vacuum space or the CMB.

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These photons do not vibrate and only inflate like a balloon to create more space causing the expansion of the Universe.

As the size of the CMB photons increases there energy decreases and is compensated by creation of more space.

The vacuum of space therefore is quantised and is the medium in which the electromagnetic waves can propagate or transfer energy from one place to another.

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Conclusion

This theory is a spherical string theory in 3 dimensions which produces many features of the Universe we live in.

In the next paper under preparation the numbers of photons in the universe and the formation of galaxies with super massive Black-Holes in the centre and the physics inside the Black-Holes as well as the evolution of the Universe will be addressed.

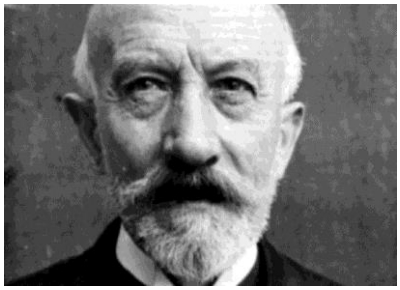
And finally:

As the Galileo Galilei has said:

> All truths are easy to understand once they are discovered; the point is to discover them'.

And George Bernard Shaw has said:

> All great truths begin as blasphemies.



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4) **http://viXra.org/abs/1704.0082**