Figures gravity
+
explanation
universe-cycle
Figure 1a: The origin of gravity

- Gravity is generated exclusively by the speed of an atom relative to the fixed center C of the universe and rotation center R1 of the galaxy. Gravity is generated solely by the ‘shell’ electrons within the atom. Gravity is not linked to the mass of the atoms as Newton and Einstein assumed.

- Through gravity, the ‘shell’ electrons protest against the velocity of the atom in the universe by the resulting discrepancies in the orbits of the ‘shell’ electrons! The primary intention of gravity is to reduce the velocity of the atom in the universe. Kinetic energy impedes its efforts to reduce the speed. In the end gravity brings back all mass, matter and kinetic energy to the center C of the universe.

- Each component of the velocity of the atom causes its own specific deviation in the ideal path of each shell electron. The higher the speed, the more deviation and the more gravity generated.

- The speed of the atom or ion is connected with the amount of kinetic energy added to shell electrons and to the nucleus. Indirectly, the kinetic energy keeps the ‘shell’ electrons away from their ideal orbit.

- To transform this ‘added’ kinetic energy into binding heat, the shell electrons generate two separate physical forces and two separate chemical forces, which are associated with the ‘shell’ electron bonds, in the formation of binding heat (photons).

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### Explanation figure 1a:

<p>| | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1)</td>
<td>The electron orbits in hydrogen atoms, which is at rest relative to center C of the universe or R1 of the galaxy, do not show any deviation.</td>
</tr>
<tr>
<td>2)</td>
<td>All shell electrons move around the nucleus in ultra-thin and perfectly circular orbits. These ‘shell’ electrons do not generate any physical or chemical forces and therefore, no gravity!</td>
</tr>
<tr>
<td>3)</td>
<td>In absolute rest in universe, all isotopes of the periodic system are absolutely inert both physically and chemically!</td>
</tr>
</tbody>
</table>
Figure 1b: Gravity
Shell in which the shell electron moves:

The shell in which the shell electron moves

nucleus = proton

One movement in the universe

The shell in which the shell electron moves

nucleus = proton

Two movements in the universe

The shell in which the shell electron moves

nucleus = proton

Three movements in the universe

Explaination figure 1b:

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<table>
<thead>
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<tbody>
<tr>
<td>1</td>
<td>Each component of the velocity of the atom in the universe is added to the perfect orbit in Figure 1a, with the result that the shell electron cannot move in a perfect orbit any more.</td>
</tr>
<tr>
<td>2</td>
<td>Each speed component adds its own deviation.</td>
</tr>
<tr>
<td>3</td>
<td>As a result, the orbit of the shell electron becomes shell-shaped.</td>
</tr>
</tbody>
</table>
The shell in which the shell electron moves:

**Explanation figure 1c:**

1) Each component of the velocity of the atom in the universe is added to the perfect orbit in Figure 1a, with the result that the shell electron cannot move in a perfect path.

2) Each speed component adds its own deviation. With 5 to 9 velocities of the earth in the universe, it is a matter of 5 to 9 separate ‘added’ anomalies.

3) The orbit of a shell electron then becomes shell-shaped. Heisenberg was the first person to observe this. With the increase in the speed of the atom, the orbits of the ‘shell’ electrons becomes wider, thicker and fuzzier, so the position of the ‘shell’ electron within the electron shell is less clear and finally totally unclear.

4) The ‘shell’ electron generates gravity and other physical and chemical bond-forming forces to reach the desired state as shown in Figure 1a as much as possible!
### Explanation of Figures 1a, 1b and 1c:

<p>| | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Newton</strong> and <strong>Einstein</strong> mistakenly linked gravity to mass. Despite intensive research scientists have not been able to prove a direct link between gravity and mass, neither can they explain it.</td>
</tr>
<tr>
<td>2</td>
<td>However, <strong>gravity is not generated by mass</strong> but only generated by the ‘shell’ electrons of atoms or ions and only when they move in space relative to the <strong>center C</strong> of the universe or rotation <strong>center R1</strong> of the galaxy. <strong>Gravity and mass are not directly related to each other!</strong> (The ‘core’ electrons in the atom nucleus don’t generate any gravity)</td>
</tr>
<tr>
<td>3</td>
<td>Due to the fact that gravity has been linked to mass in the past, a huge error is now firmly established in the foundation of Science.</td>
</tr>
<tr>
<td>4</td>
<td>The earth performs 5 to 9 different speeds in the universe. This results in 5 to 9 different abnormalities and 5 to 9 separate forms of ‘added’ kinetic energy. Therefore, the shell electrons never reach the ideal path pursued by them without deviations and without ‘added’ kinetic energy.</td>
</tr>
<tr>
<td>5</td>
<td>However, all the shell electrons of atoms continuously strive to achieve this ideal and perfectly circular orbit around the nucleus. As a direct protest against these deviations all ‘shell’-electron generates gravity. The amount of gravity generated is proportional to the velocity of the atom in the universe.</td>
</tr>
<tr>
<td>6</td>
<td>The gravity generated by the shell electrons is made up of 5 to 9 different components; each one generates its own gravitational force vector. Only the force vector components of similar forces attract each other.</td>
</tr>
<tr>
<td>7</td>
<td>The other physical and chemical forces generated by shell electrons are intended to form bonds and to, indirectly, transform the amount of ‘added’ kinetic energy induced by the speed in the universe – to binding heat as much as possible. Through these bonds, an energetic and more ideal orbit of the concerned ‘shell’ electrons is obtained. Similar to gravity, all the physical and chemical forces are composed of 5 to 9 separate force vector components.</td>
</tr>
<tr>
<td>8</td>
<td>In contrast to gravity, the other physical and chemical forces are proportional to the kinetic energy and thus proportional and quadrilateral to the velocity of the atom!</td>
</tr>
<tr>
<td>9</td>
<td>Only force vector components of the same kind can form a bond. All physical and chemical forces are composed of the same 5 to 9 separate binding-vectors.</td>
</tr>
<tr>
<td>10</td>
<td>Gravity is inseparably linked to the phenomenon gravitational energy i.e. potential energy. If the velocity of the atom in the universe is zero, then the amount of gravity generated by the ‘shell’ electron is zero and gravitational energy of the atom does not exist.</td>
</tr>
<tr>
<td>11</td>
<td>Gravity and related gravitational energy are the driving forces in the universe and during the cycle of the universe.</td>
</tr>
</tbody>
</table>
The expansion of the universe-spherical-shell which, as a result of gravity, expands more and more slowly in time. This expansion eventually comes to a complete stop after approximately 350-450 billion (10^9) years. Then, as a result of gravity, the universe starts to contract in the direction of the center C of the universe. The universe-spherical-shell shrinks.

- All the electromagnetic radiation, particle radiation stay always exclusively inside the universe-spherical-shell.

- Gravitational radiation is without mass, matter charge, spin and kinetic energy. Only this radiation is present both on the inside and outside of the universe-spherical-shell. Because a factor \( \cos \alpha \) is added in Newton's and Einstein's gravitational formula.

- Gravitational energy relative to the center C of the universe (and relative to the rotation center R1 of the galaxy) is what is currently being considered as 'dark energy'.
**Explanation of Figure 2:**

<p>| | |</p>
<table>
<thead>
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</thead>
<tbody>
<tr>
<td>1)</td>
<td>The universe started as a super cold, 0 Kelvin, Little Bang from a giant spherical black hole wherein all matter and energy of the preceding universe were brought together by gravity. The Little Bang is not observable and took place approximately 40 to 45 billion years ago.</td>
</tr>
<tr>
<td>2)</td>
<td>Of the 40 to 45 billion years, about 18 billion years are observable through infrared radiation (Planck), 13.8 billion years through photons of light and possibly only 5 to 10 billion years through cosmic particle radiation.</td>
</tr>
<tr>
<td>3)</td>
<td>During the intervening time, all neutrino's, photons and cosmic particles are first converted into protons and electrons, then into hydrogen, and ultimately into the higher elements of the periodic table due to nuclear fusion.</td>
</tr>
<tr>
<td>4)</td>
<td>The period of the first, approximately 22 to 27 billion years after the Little Bang cannot be observed. However, this period of the cycle of the universe can be modelled mathematically and then quantified in detail. This whole is described in the documents G7 and G8.</td>
</tr>
<tr>
<td>5)</td>
<td>Light always moves through the universe-spherical-shell. From earth, we observe a universe that seems to expand faster in time and everywhere, while in fact, this universe shell actually expands more slowly in time due to gravity!</td>
</tr>
<tr>
<td>6)</td>
<td>The universe has a perfectly round spherical-shell which is uniform in thickness. It expands at the same rate in all directions and relative to the center C of the universe. In due course it will contract in the same way. On a universal scale, net gravity is always focused on the center C of the universe. In about 350 to 450 billion years, gravity will have steadily slowed down the expansion velocity to zero. Thereafter, the universe will contract again evenly and at a constant speed of about 0.1 - 0.15 Mm/s! Figure 2 shows a random cross-section of this balloon-shaped universe.</td>
</tr>
<tr>
<td>7)</td>
<td>About 5 to 10 billion years after the cold Little Bang, which was the start of the current universe, the protons and electrons which were released formed the hydrogen atoms. With the hydrogen atom, gravity and gravitational energy returns to the universe. At the same time a huge amount of ‘free’ of charge gravitational energy relative to center C is added to the cycle of the universe. This energy is the motor and the driving force of the cycle of the universe. The gravitational energy is what is currently thought to be ‘dark energy’. For the past, approximately 35 to 40 billion years, gravity has been slowing down the expansion of the universe-spherical-shell.</td>
</tr>
<tr>
<td>8)</td>
<td>For the past 35 billion years, the gravitational energy released during the deceleration is fully converted into rotational energy, at first of pure hydrogen, and later of the billions of pure hydrogen bulbs that have been formed and of which each has resulted in a Big Bang some 20 – 25 billion years ago. After the 4 to 20 billion Big Bangs it is converted into the rotation of the galaxies. This process will continue for the next 350 to 450 billion years. All observable galaxies, therefore, actually rotate much faster than you would expect based on the current Big Bang theory.</td>
</tr>
<tr>
<td>9)</td>
<td>According to the author, one Big Bang did not occur but there were 4 to 20 billion Big Bangs. Each of those Big Bangs marks the start of one galaxy. These explosions happened, almost simultaneously, about 20 to 25 billion years ago. The fact that the current galaxies are rotating too fast, has a very long history and is the result of gravitational energy. This rapid rotation has no relationship to ‘dark energy’. See Figure 3 and Figure 6.</td>
</tr>
<tr>
<td>10)</td>
<td>All electromagnetic radiation and all cosmic particle radiation is continuously deflected by the electric and magnetic fields of stars and galaxies and the presence of extreme low concentrations of hydrogen and helium (See G9). As a result, this radiation is always 100% moving within the universe-spherical-shell. The shell, therefore, forms a completely closed system for matter and energy.</td>
</tr>
<tr>
<td>11)</td>
<td>The universe-shell is an open system for gravitational radiation, but this radiation is the only radiation that has absolutely no form or mass or particles or electric charge or magnetic spin or energy. This is why gravitational radiation is an extremely elusive physical phenomenon. The same for time. (G2)</td>
</tr>
<tr>
<td>12)</td>
<td>All other electromagnetic radiation are based on majorana particles. These are real particles, such as neutrinos and photons which are made up of Higgs particles and which have a spatial structure; see Document F1b + Figures. Inside these particles are an equal amount of mass and anti-mass, positive and negative charge, parallel and anti-parallel magnetic spin energy and anti-kinetic energy. On the outside of majorana particles these internal qualities are not measurable quantities, but they are not exact zero. Only the speed and vibrations of these particles, as a whole, are measurable. Therefore, it seems as if these particles, such as photons and neutrinos, are pure energy, but that is not the case! All forms of particle radiation is also based on mass, charge, magnetic spin and kinetic energy.</td>
</tr>
<tr>
<td>13)</td>
<td>All forms of electromagnetic radiation and particle radiation are, first, transformed into protons and electrons within the universe-spherical-shell over the course of billions of years. Then they are converted into hydrogen. And finally, as a result of nuclear fusion in stars, the hydrogen transforms into higher elements of the periodic table. Near black holes these atoms transfer into ‘back hole’ atoms and absorbed by the black hole. See F1e + Figures.</td>
</tr>
</tbody>
</table>
Cos $\alpha$ explains the so-called ‘dark matter’

- The universe has a thin balloon-shape with a fixed center $C$ and a radius of about 2.5 to 3.5 billion ($10^9$) light-years.
- Due to the spherical-shell shape of the universe, all gravitational formulas of Newton, Einstein and others should be used with the added factor cosine $\alpha$.
- The quantitative value of cosine $\alpha$ in gravitational formulas ranges between +1 and -1, and depends on the location of the object in the universe-spherical-shell when compared to the observer on earth.
- Inside the Milky Way $\cos \alpha = 1.00000$; outside the Milky Way $\cos \alpha$ first goes down to 0 and then to -1.

The universe-spherical-shell with a radius of 2.5 to 3.5 billion light-years which is homogeneously occupied by 4 to 20 billion galaxies.
**Explanation figure 3:**

<p>| | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td><strong>Figure 3</strong> shows a random cross-section of the balloon-shaped universe and the galaxies. The universe has a long history which will be described briefly.</td>
</tr>
<tr>
<td>2)</td>
<td>At the end of the previous universe and approximately 40 to 45 billion years ago, 4 to 20 billion super central black holes (each containing some 30 to 150 nowadays present galaxies) from all directions met at the center C of the universe to merge into one super big Little Bang black hole with a radius of 25 to 50 million km. The Little Bang black hole contained all the matter and all the energy of the universe brought together by gravity. The electron shells of the black hole atoms present in all black holes, repel each other like is the case at common atoms.</td>
</tr>
<tr>
<td>3)</td>
<td>In all compact celestial bodies, the repelling black hole atoms are kept together by gravity. Black holes are basically unstable celestial bodies. As long as there is sufficient gravity, the black hole remains stable and the black hole atoms are stable and stay intact. The minimum amount of gravity needed in a black hole is defined as the <strong>Critical Black Hole Gravity</strong> (Cribgra).</td>
</tr>
<tr>
<td>4)</td>
<td>The current universe started approximately 40 to 45 billion years ago with a super cold Little Bang at 0 Kelvin! (See G6). In the final phase of the previous universe and around the center C of the universe, a huge Little Bang black hole was formed. All speed relative to C disappeared and therefore, all gravity and all the remaining gravitational energy reached zero.</td>
</tr>
<tr>
<td>5)</td>
<td>It was only at the end of the formation of the Little Bang black hole, that the total force of gravity dropped below the required <strong>Critical Black Hole Gravity</strong>. This resulted in an unstable Little Bang black hole. The instability occurred everywhere simultaneously because there was insufficient gravity to hold the black hole atoms together.</td>
</tr>
<tr>
<td>6)</td>
<td>During the Little Bang, the super black hole first falls apart into loose black hole atoms, which are unstable, and then into an equal number of protons and electrons through three intermediate steps; Document G6. The cycle of the universe starts all over again and it starts with an equal number of protons and electrons. During this super cold Little Bang there is no conversion of mass into energy or vice versa! No $E = mc^2$!</td>
</tr>
<tr>
<td>7)</td>
<td>The protons and electrons which were released during the Little Bang organize themselves into mono layers of protons and electrons, but are not able to form hydrogen atoms yet. During a period of 5 – 10 billion years, these mono layers expand, without gravity, at the speed of approximately $\frac{3}{4}rd$ to $\frac{3}{5}th$ of the speed of light. The cycle of the universe by Uiterwijk Winkel is based on a non-inflationary expansion of the universe!</td>
</tr>
<tr>
<td>8)</td>
<td>In the first period of 5 to 10 billion years, the universe only expands in layers of protons and electrons and at a speed of $\frac{3}{4}rd$ to $\frac{3}{5}th$ of the speed of light. During this time there are no atoms or gravity present, and gravitational energy is also absent!</td>
</tr>
<tr>
<td>9)</td>
<td>Only 5 to 10 billion years after the Little Bang and after the period without atoms and gravity, the hydrogen atom is formed. With the formation of the hydrogen atom, the phenomena of gravity and gravitational energy immediately return to the universe.</td>
</tr>
<tr>
<td>10)</td>
<td>During the formation of the hydrogen atom a huge amount of gravitational energy is added to the universe and cycle of the universe 100% ‘free of charge’. This gravitational energy is fully utilized for the cycle of the universe and is the driving force behind each cycle of the universe.</td>
</tr>
<tr>
<td>11)</td>
<td>The gravitational energy explains the ‘dark energy’ that astrophysicists have sought after! In the first period of 5 to 10 billion years, the universe-spherical-shell has already realized most (&gt; 80 to 90%) of its maximum expansion! After the formation of the atom and the birth of gravity, the expansion relative to the center C of the universe-spherical-shell starts slowing down.</td>
</tr>
<tr>
<td>12)</td>
<td>Gravity and gravitational energy are variable quantities. Both ensure that all matter and energy return to the center C at exactly the same time in order for the next Little Bang, approximately 2 to 3 trillion (10¹²) years later.</td>
</tr>
<tr>
<td>13)</td>
<td>The gravitational energy which is released during the deceleration, is still largely converted into rotational energy, first of the hydrogen gas, later of the growing hydrogen bulbs and much later, after the Big Bangs, in the rotations of the current galaxies that resulted from a distant past and rotate much ‘faster’ than you would expect based on the current Big Bang theory! These fast rotations are the result of gravitational energy. It has nothing to do with the current concepts of ‘dark energy’ and ‘dark mass’.</td>
</tr>
<tr>
<td>14)</td>
<td>The problem of ‘dark mass’ and ‘dark matter’ have largely been solved by adding factor $\cos \alpha$ to the current gravitational formulas! This results in much more gravity being calculated and thus much more matter and energy in the universe. The cycle of the universe meets both concepts concretely. Applying a mathematical model of the cycle of the universe can solve the two concepts quantitatively. (A part of the expansion energy is spent on gravitational energy relative to C).</td>
</tr>
</tbody>
</table>
15) At present, gravity has slowed down the expansion velocity of \( \frac{5}{2} \text{rd} \) to \( \frac{5}{4} \text{th} \) of the speed of light of the current universe-spherical-shell to approximately 400 to 450 km/s.

16) Gravity will reduce the further expansion of the universe-spherical-shell relative to the center C to zero. That point will only be reached after about 350 to 450 billion years! At first, all hydrogen, helium and lithium have to merge and the entire galaxy will have to be incorporated into the central black hole. All galaxies will collide to transform the 5 – 9 velocities into only one rotation speed of the final to form central black hole!

17) Thereafter, the universe spherical-shell - consisting of 4 to 20 billion huge central black holes - will contract towards the center C and all matter and all energy of the universe will be brought back to the center C by gravity and will arrive at the center C of the universe at exactly the same time. There they will gather in the next Little Bang black hole for the next Little Bang which will launch the new cycle of the universe!

18) All electromagnetic radiation is deflected ever so slightly, (one degree every 10 to 40 thousand light-years) but it 100% continues to move within the universe-spherical-shell and cannot leave this shell. We always observe the deep universe through this universe-spherical-shell; see Figure 4a.

19) The deflection creates a universe that is a 100% closed system for matter and energy. Due to the deflection of light and other radiation, we always look through the universe-spherical-shell which gives the impression that the universe is expanding faster and faster; see Figure 5. The universe used to expand faster than what it does today. We can perceive it through the redshift. Through the deflection of light we observe a universe where it is as if the earth is always in the center of the universe. That picture is beautiful, but the seemingly increasing expansion of the universe is, unfortunately based on an (false) optical illusion!

20) The universe-spherical-shell expands slower due to gravity. However, when we look at the past through the universe-spherical-shell, it becomes very deceptive i.e. as if the universe is expanding faster and faster! 13.8 billion years ago, the universe expanded about 70 to 75 km/s faster than at present which is still being estimated between 400 and 450 km/s. The deflection of light and other radiation, which are currently not recognized, cause numerous false and incorrect interpretations of our observations of the universe.

21) The universe-spherical-shell is homogeneously occupied by between 4 and 20 or more billion galaxies. Due to the deflection of light it also causes duplication because the light from the galaxies reach the earth through different orbits and with time differences. According to the author, it is realistic to consider a duplication factor of approximately 20 x (if not more). The result is that we observe more galaxies (about 100 to 150 billion pieces) than what really are in the universe-spherical-shell. The author estimates that the actual number of galaxies present are between 4 to 20 billion. The modelling of the cycle of the universe can bring clarity.

22) Currently, the universe-spherical-shell has a radius of 2.5 to 3.5 billion light-years from the center C of the universe and a circumference of approximately 15 to 25 billion light-years. By modelling the universe and the cycle of the universe mathematically, the twelve basic parameters of the universe will exactly quantify each of the 29 phases/steps of the cycle of the universe. (Documents G3, G4, G6, G7 and G8 www.uiterwijkwinkel.eu)

23) All types of radiation are based on mass, charge, spin volume and kinetic energy and therefore has wave-like characteristics. However, this does not apply to gravitational radiation. Of all imaginable forms of radiation only gravitational radiation is based on the 100% absence of mass, electric charge, magnetic spin volume and kinetic energy and any form of wave motion. The consequences are:
   a) Gravitational radiation cannot be deflected and will therefore always move in a straight line through the inner universe and eventually to the outside of the universe,
   b) The force of gravity moves at speeds much higher than the speed of light. In all probability, gravity moves through the universe with an infinite speed,
   c) Gravitational radiation is not physically demonstrable. It’s just there.

24) Only shock waves of gravitational energy are demonstrable and measurable. These waves are only transported though atoms and molecules and thus fully restricted to the speed of light! LIGO didn’t measure waves of gravity (= infinitive speed!) but only the shock waves of gravitational energy (= speed of light!)

25) Due to the tremendous speed, all gravitational radiation leaves the universe-shell instantly! In the past, as a result of gravity, any other potential universes eventually merged into a single universe! Because of gravity parallel universes are impossible. There is only one universe!

26) All other particles and electromagnetic radiation are based on majorana particles with mass, charge and spin and a wave-like characteristic. These types of radiation are all fully bound to the speed of light. All other forms of radiation are deflected by electric and magnetic fields in the universe-spherical-shell and by extreme low concentrations of gases like hydrogen and helium. Due to the deflection of all other particles and electromagnetic radiation present, the universe-spherical-shell is a 100% closed system for matter, charge, magnetic spin and energy!

27) Gravity is caused by the velocity of atoms in the universe and is only generated from the ‘shell’ electrons of all ordinary atoms of the periodic table and all ‘shell’ electrons of all black hole atoms (F1e). The elements H, He and Li cannot be incorporated into a black hole and have to stay around the central black hole of the galaxies. When they merge by fusion into higher elements (≥ Be) they can enter the black hole!
Temporarily, gravity is quantitatively proportional to the velocity of the atom in the universe relative to C. When this speed equals zero all gravity disappears. This disappearance of all speeds and, thus disappearance of all gravity, took place in the run up to, and just before, the Little Bang, approximately 40 to 45 billion years ago.

Each of the current 5 to 9 velocity components of the earth and other celestial bodies in the universe generates a gravitational vector in the shell electrons of atoms related to the specific speed of each. Therefore, the gravity generated by the shell electrons, consists of at least 5 to 9 separate gravitational components. This also applies to the other physical and chemical forces of atoms and their constants of nature. These forces are related to kinetic energy and therefore increases quadratically with the speed relative to the center of the universe.

The gravitational constant is also dependent on the speed and also consists of 5 to 9 (or more) of the same number of underlying gravitational constants! They are not real constants. Just like the underlying gravity vectors, the gravitational constants change very slowly and predictable during the cycle of the universe.

This also applies to almost all other physical and chemical constants of nature related to kinetic energy. The nature constants for the electric charge and the magnetic spin of the proton and the electron, as well as the speed of light, are the only real constants in this universe and all coming universes!

Only similar gravitational components of two celestial bodies attract each other. Unequal gravitational vectors are completely indifferent to each other. This reflects the general and applicable vector law forces and bonds of Uiterwijk Winkel.

The phenomena gravity does not have anything to do with mass, but depends on:

a) the number of 'shell' electrons in a celestial object and
b) the velocity of the atom in the universe relative to the center C and rotation center R1 of the galaxy.

See the gravitational formulas of Franklin Roos Document E3 www.uiterwijkwinkel.eu

The incorrect link made by Newton and Einstein between mass and gravity led to basic misunderstandings and fundamental errors in the foundation of science today! See J2 and J1.

Gravity has nothing to do with the distortion of time and space as indicated in the Theory of Relativity. See G2. The universe, on its own, has a balloon-shape.

The universe clock time (our time) matches the cycle of the universe. All points in the universe-spherical-shell always have exactly the same universe clock time as present in the center C of the universe. The universe clock time runs at a constant speed. It (our time) cannot be slowed down or be stopped, let alone be reversed!

At present, the foundation of Science is based on erroneous links between gravitational mass, time and space! See document G5. Einstein’s Theory of Relativity has sufficed for a century. Currently (2016), this theory will be completely overtaken by the cycle of the universe and the mathematical model of this cycle and the universe.

When applying the gravitational formulas, adding the factor cos α has become mandatory; Figure 3. Within the Milky Way, cos α = 1.00000. On the outside of our galaxy, cos α goes down to 0 and eventually to -1 on the opposite side of the universe-spherical-shell.

With cos α added to the gravitational formulas, the universe contains much more gravity and thus much more matter and energy than what is calculated at present using the current formulas without cos α.

Cos α considerably (if not fully) reduces the deficit of matter and energy in the universe.
Figure 4a: Gravity

The same history of 40 to 45 billion years applies to each of the 4 – 20 billion galaxies:

- The speed of the expansion of the universe-spherical-shell in relation to the cycle of the universe and the universe clock time.

- This universe began about 40 to 45 billion years ago with a complete super cold Little Bang at 0 Kelvin which cannot be observed. The period of 22 to 27 billion years after the Little Bang is no longer noticeable.

- Only about 18 billion years is observable and measurable through infrared radiation; through light, slightly more than 13.8 billion years, and through particle radiation only 5 to 10 billion years!

- However, the period that cannot be observed - approximately 22 to 27 billion years since the beginning of the cycle of the universe - can be completed deduced and quantified by using a mathematical model of the cycle of the universe. The next few years the whole past and whole future of our universe can be quantified in detail!
The moment that the current universe started, was approximately 40 to 45 billion years ago and it started with a complete super cold Little Bang at 0 Kelvin out of a gigantic black hole with a radius of 50 – 100 million km:

This universe didn’t started out of a singularity! With the formation of the huge Little Bang black hole at the end of the previous universe, almost all space and all speeds in the universe disappeared. Without speed all gravity disappeared from the universe! At the time of the Little Bang, gravity dropped to under the minimum required for the stability of black holes! By falling below the Critical Black Hole Gravity (Cribgra) all black hole atoms ≥ Beryllium, present in the Little Bang black hole, became unstable simultaneously. In three steps these black hole atoms fell apart into an equal number of protons and electrons which only possess mass, elementary electric charge and magnetic spin. See G6 + figure 6. At the moment of the Little Bang when the black hole atoms disappear, all the remaining gravity and gravitational energy of the universe also disappear! During the Little Bang at 0 Kelvin, the protons and electrons, which have been released, organize themselves into alternate mono layers of one proton and one electron thick. These 1:1:1:1 layers expand, after the Little Bang at 0 K, without gravity due to the homogeneous electric spring tension at a ⅓rd to ⅓ of the speed of light c relative to center C of the universe. (The cycle of the universe does not have a period with inflationary expansion!).

After the Little Bang occurred and the Little Bang black hole fell apart into protons and electrons, it grows like a round ball with alternative mono-layers of protons and electrons with a thickness of between 500 and 750 light-years for about 1,300 to 1,500 years. In the meantime, a complete empty spherical inner space is formed. From that moment, the expansion occurs at ⅓rd to ⅓ of the speed of light while the universe-spherical-shell gets thinner! Nothing about this cold Little Bang and the expansion of the universe-spherical-shell can be observed anymore!

A period of the expansion of the universe-spherical-shell relative to C, on all sides and completely undisturbed for approximately 5 to 10 billion years:

Due to the absence of gravity, the expansion rate is almost constant during this period. The temperature is always 0 Kelvin. During the expansion of the universe-spherical-shell its thickness decreases from 500 - 750 light-years to only tenths of km. In this period, the layers of protons and electrons take up their positions very slowly in such a way that each proton can capture an electron. This happens throughout the universe and at exactly the same time in order to form the hydrogen atom. Nothing of the period after the Little Bang, can be observed any more.

The moment when hydrogen atoms are formed throughout the universe-spherical-shell at exactly the same time:

This moment introduces gravity into the universe. From nothing, a huge amount of gravitational energy is added to the universe and the cycle of the universe completely free of charge.

This added gravitational energy is what scientist today consider to be ‘dark energy’ (2016). With the hydrogen atom temperature and one physically and chemically forces also returns to the universe.

The hydrogen atom also generates the radical force for the covalent bond which directly results in the formation of the hydrogen molecule and the electron pair.

The electron pair in the hydrogen causes the Van der Waals force (London force) to return to the universe and with it the possibilities of the physical phase states of gas, liquid, solid and plasma. At the time of the formation of the hydrogen molecule the temperature increases to several thousand Kelvin. This event can no longer be observed from earth.

A period of approximately 15 billion years of cooling with only gaseous and liquid hydrogen: Gravity greatly slows down the expansion rate of the universe-spherical-shell. The kinetic energy which is released cannot be converted into heat but is almost completely converted into rotational energy in a flat plane perpendicular to the expansion velocity. In the universe-spherical-shell of pure hydrogen, 4 to 20 billion rotation points and rotation areas *) occur that spread themselves homogeneously throughout the universe-spherical-shell. Each rotation area later results in one galaxy. *) Probably much more. Those areas later grow to one galaxy.

The hydrogen cools down to its condensation point:

Liquid hydrogen and therefore, gravity and gravitational energy accumulate locally on the billions of rotation points R1 of the future galaxy. At each of these rotation centers 4 to 20 billion large hydrogen bulbs are formed. They are equal in size, super large and they rotate. These hydrogen bulbs start growing larger and rotating faster. As the hydrogen bulbs increase in size, their temperature increases to millions of Kelvin. This is a period with only light and infrared radiation. This period with the hydrogen bulbs becoming hotter, cannot be observed as well.

The moment when the pressure and temperature in the 4 – 20 billion big, pure hydrogen bulbs increase and spontaneous nuclear fusion occurs, almost simultaneously, in all hydrogen bulbs / spheres:

Each hot hydrogen bulb results in one superhot Big Bang more or less equal to the Big Bang theory. In total there were 4 to 20 billion Big Bangs spread homogeneously across the universe-spherical-shell. These Big Bangs were created from the pure hydrogen plasma bulbs and did not take place from a singularity! These Big Bangs happened approximately 20-25 billion years after the Little Bang and about 20 to 25 billion years ago. The 4 to 20 billion Big Bangs cannot be observed.

During the Big Bangs, the nuclear fusion process gets out of control. Approximately 13% of the hydrogen present merge into elements with >> 56 (element iron), and in particular uranium and higher. The central part of the fusion area directly transforms into the central black hole as is currently present in the center of all galaxies. Approximately 2% of the hydrogen merge into elements ≤ Fe and a small part merges even into uranium. The outer part of the nuclear-fusion area which mainly consists of elements ≤ Fe, is emitted by the explosion, together with approximately 85% of the hydrogen which has not merged yet. This hydrogen then later forms stars and planets during the cooling process. During the fusion explosions, all elements and isotopes of the periodic table come into existence. What remain from the billions of Big Bangs, are the elements of the periodic table, the central black hole of the galaxy and mostly 2 (to 4) spiral arms of the galaxy. See figures G8.

During the Big Bangs, the ‘shell electrons’ bind with the nuclei to form nuclear electrons. (The author, justifiably, replaces all neutrons in the nucleus with one proton and one ‘core’ electron). These nuclear electrons do not generate gravity nor physically or chemically forces anymore! During the billions of Big Bangs, approximately ⅓th of all the existing gravity and thus gravitational energy of the universe disappear! See figure 6. Prior to the Big Bang explosions a structure occurred in such a way that, after the Big Bang, all matter arranged itself in a flat plane as is the case with all galaxies. This has been detailed in the cycle of the universe; Document G7 (text) and Document G8 (figures). In fact the universe is a thin and flat spherical balloon shell.
The matter - emitted in a flat plane after these Big Bangs - form the (2 to 4) spiral arms of the galaxy. They then cool down to liquids and solids. Under the influence of gravity, in each Big Bang area / galaxy 300 to 400 billion celestial bodies, containing highly radioactive material, are formed.

During the further cooling down of the gases, they first condense to liquids and solids and as latest to liquid hydrogen and helium! During the second condensation process of the hydrogen in each Big Bang area, approximately 100 to 200 billion hydrogen / helium bulbs are formed around a big solid core: the pre-stars, gaseous planets and other smaller planets. During the formation of the bulbs, which contain hydrogen, the temperature and pressure again increases to the point of fusion.

Because of the presence of the radioactive isotopes in the core of these hot hydrogen bulbs / proto-stars, the fusion process already starts in much smaller bulbs and at a lower temperature of a few Kelvin. For this reason, the fusion process in stars is much calmer, more controlled and without the huge explosions like in the Big Bangs!

Each of the 4 to 20 billion Big Bang areas results in one galaxy with 100 to 200 billion stars and with the same amount of gas planets consisting of hydrogen without fusion, and a smaller number of planets with an atmosphere similar to earth.

During the first, approximately 5 to 7 billion years:

After the Big Bangs, the universe / universe-spherical-shell, as a whole, cools down to a few Kelvin which results in the condensation of hydrogen and finally helium. It is only exposed to infrared radiation and not to light. The earliest observable condensation period has been visualized by the Planck satellite that measured the background temperature (infrared). The Planck satellite can observe up to approximately 18 billion light-years back in time.

This only applies to infrared radiation! Through infrared radiation, we can look back in time to 5 to 7 billion light-years after the period with 4 to 20 billion Big Bangs! The Big Bangs and starts of the galaxies cannot be observed.

The oldest part of the universe-spherical-shell that is visible with a telescope, is about 5 to 7 billion years after the billions of Big Bangs and some 13.8 billion years ago. These observable galaxies are already fully formed and have 2 (to 4) spiral arms and all contain stars with nuclear fusion.

From earth, we can look back to about 18 billion years using infrared radiation, using light we can only look back up to 13.8 billion light-years and using particle radiation we can look back 5 to 10 billion years. Within the approximately 18 billion years - 13.8 billion years and 5 to 10 billion years - all forms of infrared radiation, light and particle radiation were transformed back into protons and electrons and finally hydrogen. From the earth this is our maximum event horizon! It seems as if infrared radiation, light photons and particle radiation have a maximum time of stay in the universe-spherical-shell before they convert into protons and electrons and into hydrogen. At present, it still happens frequently and results in newly formed hydrogen and in the formation of new stars.

The radiation of light and infrared is literally processed and transformed into new matter and thus light and infra-red radiation disappear. Light and other radiation does not reach the earth in straight lines through the universe-spherical-shell but through meandering and curved paths within the universe-spherical-shell. This results in the duplication in the number of galaxies by a factor of about 5 to possible 20 times!

The period with 4 to 20 billion galaxies:

This period primarily aims to merge all hydrogen, helium and lithium into beryllium and higher through nuclear fusion and to absorb all matter and thus a large part of the kinetic energy of an entire galaxy into the central black hole of the galaxy. Furthermore, all the radiation from the stars must be transformed back into protons and electrons and, finally, into hydrogen.

The fusion of the shell electrons into the nucleus, the amount of gravity and related gravitational energy decreases! In fact gravity is generated by the shell electrons. This decrease in gravity and gravitational energy is illustrated in Figure 6.

It is most likely that the event horizon of cosmic particles is only about 5 to 10 billion light-years. Furthermore, these particles are transformed into protons or electrons to and ultimately into hydrogen within this period. These particles are removed from the universe-spherical-shell more rapidly than the photons of light and infrared radiation. Currently, all the stars are still emitting infrared radiation, light and cosmic particles and will continue to do so for the next few billions of years. Step/phase 23 of the cycle of the universe, in which we currently are at, will last approximately 350 to 450 billion (109) years before all the hydrogen is merged and the entire galaxy absorbed into its own central black hole. This applies to each of the 4 to 20 billion galaxies.

The 21st century:

Currently, the universe is 40 to 45 billion years after the Little Bang. The expansion of the universe will continue to decelerate due to gravity, and will eventually come to a halt in about 350 to 450 billion years. After that, a period of contraction will follow which will take about 2 - 3 trillion (1012) years. By gravity these 4 to 20 billion huge central black holes will return to the center C of the universe in preparation for the next super cold Little Bang.

Upon the return of all the central black holes, the remaining gravitational energy, shown in Figure 5, is continuously used to slow down the acceleration of the contraction to a stabilized contraction speed of 0.10 to 0.15 mm/s (100 to 150 km/s).

This process has been described in documents G7 and G8 on the website. We are currently living approximately 40 to 45 billion years after this super cold Little Bang and actually only at the beginning of the cycle of the universe that lasts about 2 to 3 trillion (1012) years. Each cycle of the universe is an almost exact copy of the previous cycles and provides a blueprint for all forthcoming cycles.

Apparently, the earth is in the center of an accelerated expanding universe with duplicate numbers of between 100 to 150 billion galaxies. Due to the minimal deflection of light the universe is filled with different types of virtual images!

We live in a balloon-shaped universe with probably only 4 to 20 billion or more galaxies that we never get to see as such. The universe is far from what it seems!

After about 350-450 million years the fusion process will stop in all existing and newly formed stars:

Eventually, all the stars will run out of ‘fuel’. All the hydrogen, helium and lithium are merged into beryllium and higher elements that can transfer into black hole atoms.

In the meantime, in the 4 to 20 billion galaxies, all remnants of smaller local black holes, stars and their planets are all fully integrated into the large central black hole. Then, all radiated energy and cosmic particles are also transformed back into hydrogen and again merged into beryllium and higher, within the star, and absorbed in one of the billions of central black holes. Then, the universe is perfectly dark and without any radiation and heat. The expansion rate has fallen to zero everywhere.

All galaxies collide 4 – 8 times to lose their 5 to 9 speeds and transferring those speeds in only one rotation speeds of the final black hole build out of 24 to 26 nowadays galaxies. (LIGO gets very busy)
Contraction of the universe towards center C:
Under the influence of the rectified gravitational rotation of the central black holes the universe-spherical-shell with 4 to 20 billion central holes, subsequently starts to contract towards the center C of the universe. As the only form of ‘radiation’, gravity moves much faster than light and probably even at an infinite speed and always rectilinearly through space.
Due to this characteristic of gravity, it is the main driving force during the cycle of the universe. The direction of gravity ensures that the 4 to 20 billion central black holes always keep in contact and therefore return to the center C of the universe at the same speed.
All central black holes must meet again at C simultaneously for the next super cold Little Bang. Not one central black hole may be missing or arrive too late at C as that would be a catastrophe and block a new cycle of the universe.
The contraction speed of the universe-spherical-shell generates a contracting gravity. However, this form of gravity is completely opposite to the existing rotational speed and rotational gravitation of the central black holes.
The potential acceleration in the contraction speed is thereby slowed down continuously to a relatively low and constant speed of approximately 0.1 to 0.15 mm/s. Therefore the contraction of the universe-spherical-shell takes place without the so-called Big Crunch! On their way to C and in time, the 4 to 20 billion central black holes will be increasingly stripped of their angular velocity and thus their gravity and gravitational energy!
Therefore, the gravitational energy of the entire universe-spherical-shell with respect to center C will also decrease as shown in Figure 6. Have a look at figure 79 C8. Due to the low contraction speed, the period whereby the universe-spherical-shell contracts, takes no less than approximately 2 to 3 trillion years to complete!
Just before the central black holes touch, they must be completely stripped of their rotational speed and the corresponding rotational gravity and corresponding gravitational energy.
The contraction speed and contraction gravity then ensure that all central black holes remain above their Critical Black Hole Gravitation (Cribhgra) and thus remain stable. One premature explosion marks the end of the cycle of the universe.

Under the direction of gravity:
Approximately 2 to 3 trillion years after the Little Bang these 4 to 20 billion central black holes come together simultaneously and without any rotation near the center C to merge into one perfectly round universe-spherical-shell with a thickness of approximately 50 to 100 kilometers, consisting of pure black hole matter and with C exactly in the center. The universe-spherical-shell, consisting of black hole matter, contracts further in the direction of C.

Constructing the Little Bang black hole:
As a result of the contraction speed and contraction gravity of the universe-spherical-shell of pure black hole matter gets smaller and thicker and the empty spherical space disappears more and more. The mutual displacement of the black hole atoms continuously decreases the contraction rate of the universe-spherical-shell. Eventually, one big Little Bang black hole is created with a radius of 50 to 100 million km with C exactly in the center.
In the last phase, the contraction rate within that Little Bang black hole relative to C decreases towards zero m/s and the giant black hole generates less and less gravity and therefore becomes increasingly unstable!
Eventually the hollow interior is completely filled with black hole matter. Then all speed has disappeared and, with, it all gravity and all gravitational energy as well! The Little Bang black hole reaches the Critical Black Hole Gravity.
Around the center C the next super cold Little Bang occurs whereby the first giant Little Bang black hole falls apart into loose black hole atoms and after that into loose protons and electrons. The next cycle of the universe starts at C and thus the next universe. Each cycle of the universe is an almost exact copy of the previous cycles and is the blueprint for all forthcoming cycles.

Epilogue: The slight deflection of light results in virtual images of the universe. This deflection completely put Science on the wrong track and plays tricks on our minds:
Apparently, the earth is at the center of an ever-expanding universe with the duplication of between 100 to 150 billion galaxies!
Due to the minimal deflection of light the universe generates all kinds of virtual images! We do not live in an ever and rapidly expanding universe but in a balloon-shaped universe that, to the contrary, expands more slowly and is occupied by only 4 to 20 billion (or more) galaxies. We never actually get to see this universe-spherical-shell. The universe is far from what it seems to be!
Fortunately, we can make a mathematical model of the universe-spherical-shell and the 29 phases/steps of the cycle of the universe. With this model the universe can be fully understand and quantitatively completed. This modelling take a few years. Than for any time during the cycle the universe can be shown qualitatively as well qualitatively in detail!
Such a model is an indispensable tool in testing the astrophysical research.
Figure 4b: Gravity

The contraction of the universe-spherical-shell consisting of 4 to 20 billion central black holes. Each central black hole is the remains of 25 to 29 nowadays present galaxies.

- Central black hole with mass, matter and kinetic energy of $2^5$ to $2^8$ nowadays present galaxies.
- Little Bang black hole containing all the mass, matter and energy of the entire universe.
Figure 5: Gravity

The event horizon of the universe-spherical-shell from the earth and its history:

- The view from earth of the universe is distorted by a slight deflection of photons in the universe-spherical-shell resulting in virtual images.
- The deflection amounts to an average of approximately 1 degree in 10 to 40 thousand light-years. That is extremely small, but enough to completely distort the virtual images of the universe.
- As one looks further back in time the more galaxies are being observed.

Notes:
- The formation of pure hydrogen bulbs getting hotter until the Big Bang occurs.
- The Big Bang and the formation of the central black hole approximately 20-25 billion years ago.
- Planck’s horizon of about 18 billion light-years with only infrared radiation.
- Event horizon of the universe from the earth for light up to 13.8 billion light-years.
- Event horizon from earth of about 8 to 10 billion light-years with particle radiation.
- For an explanation of nrs 1 to 11 see note figure 4a.

The steps 12, 13, 14 and 15 are future and are described in document G7 and G8.
### Remarks Figure 5:

<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>1)</strong></td>
<td>For an explanation of nrs see the explanation of Figure 4a. The steps and represent what is to come in the future.</td>
</tr>
<tr>
<td><strong>2)</strong></td>
<td>These 4 to 20 billion Big Bangs are no longer visible, neither is the previous period with the growth of the same number of super large, increasingly hotter and faster rotating pure hydrogen bulbs. All prior periods cannot be observed.</td>
</tr>
<tr>
<td><strong>3)</strong></td>
<td>From earth we can look back to approximately 18 billion years using infrared radiation, 13.8 billion light-years through light, and approximately 5 to 10 billion years through particle radiation.</td>
</tr>
<tr>
<td><strong>4)</strong></td>
<td>At point we observe fully functioning galaxies. The 4 to 20 billion Big Bangs must therefore have happened approximately 5 to 7 billion years earlier. These Big Bangs are not visible.</td>
</tr>
<tr>
<td><strong>5)</strong></td>
<td>Due to the deflection of light we observe the universe through the universe-spherical-shell. Consequently, we observe a universe where the expansion seems to accelerate rather than slow down. Our observations are based on virtual images through which misconceptions arise. In reality, the universe is not expanding faster but slower as a result of gravity.</td>
</tr>
<tr>
<td><strong>6)</strong></td>
<td>The deflections caused by light, infrared and particle radiation provide completely distorted virtual images of the universe. Everyone should be aware of this.</td>
</tr>
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</table>
The process regarding the amount of gravitational energy (dark energy) throughout the cycle of the universe: See more recent figure 79 document G8. Gravity and gravitational energy are the driving forces of the cycle of the universe.

- Gravitational energy relative to the center $C$, is only possible if we consider a spherical-shaped universe and $C$ is exactly in the center of the universe.

- The gravitational energy relative to center $C$ is the same as what scientists currently refer to as dark energy (2014).

- The origin of the ‘dark energy’ has now been explained, and the mystery has become clear!
1) The universe is based on a fixed amount of kinetic energy that is mainly found on:
   a) Higgs level
   b) in the form of matter on the level of protons, electrons and atoms and
   c) the expansion rate during the first ‘gravity-free’ period after the Little Bang.
   This fixed amount of kinetic energy was exactly the same for all the previous cycles and will be the same for all cycles
   of the universe in the future!

2) For the first 5 to 10 billion years:
   Only protons and electrons are present. The atom, gravity and gravitational energy are absent. In this period, there is
   only a fixed amount of kinetic energy.

3) The moment of the formation of the hydrogen atom:
   The perfectly round universe-spherical-shell around center C reaches a radius of 2.5 to 3.0 billion light-years. Gravity
   is only generated by the shell electrons of atoms and only in combination with the velocity of the atom in the universe
   relative to the center C and later the rotation centers R1 of galaxies.
   At that time, the hydrogen atoms move at a ⅓rd to ½th of the speed of light relative to C generating much gravity. The
   gravity is directed towards C and greatly slows down the expansion rate.

4) Gravitational energy:
   With the formation of gravity, a huge amount of gravitational energy relative to C arises. This energy and is completely
   ‘free of charge’. This ‘free’ gravitational energy is added to the cycle of the universe. This gravitational energy is what
   scientists currently (2016) call dark energy!

5) With the 4 to 20 billion Big Bangs, approximately a 1/6th of the gravity and gravitational energy present at that time,
   disappear because many of the ‘shell’ electrons become ‘core’ electrons (bound in the nucleus). These ‘core’ electrons
   lose their ability to generate gravity and gravitational energy!

6) Approximately 350 to 450 billion years after the Little Bang, the expansion of the universe spherical-shell
   comes to an end.
   All hydrogen, helium and lithium merge into higher elements and transferred into black hole atoms. All ‘shell’ electrons,
   which have generated gravity, being transformed into ‘core’ electrons do not generate gravity and gravitational energy
   any more. During the cycle of the universe, gravity and gravitational energy relative to center C and rotation center
   R1 disappear more and more as a result of the nuclear fusions in stars.

7) When the expansion reaches its maximum, all atoms are trapped in the central black hole of the galaxy.
   Than approximately only 40% to 50% of the original gravity and gravitational energy is still available. At that point, the
   universe-spherical-shell, with its 4 to 20 billion central black holes, starts to contract in the direction of C.

8) The period whereby the universe-spherical-shell contracts very slowly.
   During this period of contraction, the gravitational energy is utilized to slow down the acceleration continuously to a
   constant speed of approximately 100 to 150 km/s.

9) Under the direction of gravity all central black holes return to C simultaneously in order to merge into one
   large Little Bang black hole.
   Then almost all the gravitational energy is again fully utilized.