

# **ELEMENTARY PARTICLES MODEL 2008**

## **(EPM 2008)**

**The structure of all subatomic mass/Higgs particles and of all matter and antimatter particles + 15 figures in the separate document:**

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**\*) With thanks to Frank Roos for his remarks and Mariëlle Uiterwijk Winkel for her comments,**

**\*\*\*) With thanks to Adarshi Yadava for designing the figures in documents F1 and G8**

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## ABSTRACT:

- The author proposes but *four* stable basic building blocks of matter/antimatter:
  - a) The *ordinary proton and electron* of which the elements in the Periodic Table of Elements (starting at H) are constituted and of which atoms in black holes or black-hole elements (starting at Be) are constituted,
  - b) The *anti-proton and anti-electron* of which anti-hydrogen is constituted.

The unstable neutron is composed of one proton and one electron and is *not* a basic building block of the atomic nucleus.

The four smallest particles of complete matter are themselves composed of even smaller elementary particles.

- The author describes the composition of the (anti-)proton and (anti-)electron from five levels:
  - a) The lowest level is formed by photinos/Higgs particles,
  - b) The level of photons as rhombus-shaped structure of five identical photinos,
  - c) The level of rotary photons; photons rotating around their own short axis with the speed of light,
  - d) The level of strings as rhombus-shaped structure of five identical rotary photons,
  - e) The level of quarks as rhombus-shaped structure of five identical strings,
  - f) The proton/electron and the anti-proton/anti-electron as rhombus-shaped structure of five identical quarks.

On all levels, the structure is rhombus-shaped and the end result is always the (anti)proton and (anti-)electron as the only four smallest particles of complete matter.

- Because of the obligatory rhombus shapes, each of the six described levels of matter formation encompass a maximum of two particles towards the (anti-)proton and a maximum of two particles towards the (anti-)electron. These two particles are always completely each other's opposite matter or antimatter!  
At each level, both the minimum and maximum number of elementary particles that can be distinguished is exactly four.
- The author distinguishes a total of *twenty* elementary particles of *incomplete matter* in *four* particles of *complete matter*. These can be used to describe all forms of matter.
- These six levels of matter/antimatter formation and 24 particles are part of Uiterwijk Winkel's *Elementary Particle Model 2008 (EPM 2008)*. This EPM 2008 shows:
  - a) the structural symmetry of all forms of matter in the universe,
  - b) the +/- character of charge and magnetic spin,
  - c) The +/- character of all other forces acting on the atom, all of which are derived from the (anti-)proton and (anti-)electron.
- In the *Elementary Particle Model 2008*, the fundamental physical characteristics {mass ( $m$ ), charge ( $L$ ) and magnetic spin ( $M$ )} for all 24 (anti-)matter particles are *defined quantitatively* as *rational fractions* of the (anti-)proton and (anti-)electron. These are the only three fundamental physical values of elementary particles. (Gravitation is not a fundamental physical value)
- The *spatial structure* for all particles is visualized in *fifteen* figures added to this document, displayed in terms of: photinos, photons, rotary photons, strings and quarks.
- The author lacks the resources to experimentally verify his vision.

### **\*1) INTRODUCTION:**

Worldwide, many tens of esteemed research institutes, employing the finest scientists humanity has to offer, are working on deciphering the structure of matter, black-hole matter and antimatter. In this document, these institutes, scientists are, together with current scientific literature and journals, referred to as “*science*”.

These institutes are commonly funded by government and industry (defense, energy, health and science) and as such have at their disposal billions of euros in research budgets as well as the cutting edge in technical research equipment (e.g. particle accelerators, laboratories, telescopes). The author lacks these means.

### **\*2) PROBLEM DEFINITION: FUNDAMENTAL ERRORS IN SCIENCE:**

Nobel Prize winner David Gross has for some years been posing 25 questions dealing with the most fundamental issues confronting science. To further the development of science, these questions have to be answered. This has not happened as of yet (2008). This fact leads the author to conclude that serious flaws are present in the assumptions on which theoretical physics, astrophysics and chemistry are based.

Document J available on [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu) answers Gross’ 25 questions and lists some of the aforementioned flawed assumptions. Relativity theory and the application of  $E=mc^2$  constitute the gravest errors in the foundation of science. The equation is unjustly applied to determine the mass of elementary particles, leading to the Standard Model 2008 of Veltman/t Hooft.

In this document, Uiterwijk Winkel presents an alternative system of elementary particles by way of the “Elementary Particles Model 2008” or “EPM 2008”. Both models are compared using sixteen criteria and evaluated accordingly.

### **\*3) BASIC ASSUMPTIONS:**

#### ***The basic assumptions of the Elementary Particle Model 2008:***

- **Just four stable building blocks:**

The atom, black-hole atom and the anti-atom, are all made up of just two of the four stable building blocks; the smallest particles of complete matter:

- the proton and electron are the only building blocks of all ordinary atoms and all black-hole atoms,
- the anti-proton and anti-electron are the only building blocks of all anti-atoms.

The universe contains only ordinary protons and electrons and in principle no *free* antimatter in the form of anti-protons/anti-electrons or anti-atoms.

This is further explicated in the cycle of the universe which has been deduced by the author. The document detailing the cycle of the universe will be released during the first half of 2009.

- **Elementary characteristics:**

The *elementary* physical characteristics of these four stable building blocks of matter are:

- The phenomenon of a quantifiable amount of *mass* ( $m$ );  $(m)_{(\text{anti-})\text{proton}}$  or  $(m)_{(\text{anti-})\text{electron}}$ .
- A *measurable amount of elementary charge* ( $L$ )/*Charge force* ( $Lek$ ) of the proton/electron:  $(+Lek +1)$  of  $(+Lek -1)$ . The charge of the anti-proton/anti-electron is  $(+Lek -1)$  and  $(+Lek +1)$ , respectively.
- A *measurable amount of elementary magnetic spin* ( $M$ ) and *magnetic spin force* ( $Mesk$ ) of the proton/electron:  $(+Mesk +1/2)$ . The magnetic spin of the anti-proton/anti-electron is  $(+Mesk -1/2)$ .

- Inside the atom, imperceptible from without, the centrifugal force ( $Ck e$ ) of the “shell” electron keeps it in its orbit around the atomic nucleus. This centrifugal force is always balanced by the force of electric attraction between the positively charged nucleus and the negatively charged “shell” electron.
- **No neutrons in the atomic nucleus:**  
The free neutron is unstable and disintegrates into one proton and one electron. This is one of the reasons why the neutron is not a basic building block of the matter/anti-matter atom. The author has adapted Bohr’s atom model by replacing all neutrons in the nucleus by one proton and one “nuclear” electron. The atomic nucleus is thus greatly simplified and strictly logical in structure, as is the structure of the atom as a whole. See document C1
- **Atomic nucleus of only protons and electrons:**  
The structure of the atomic nucleus is based on the one hand on the reciprocal attraction between the proton and the “nuclear” electron through charge ( $L +1/L -1$ ) and on the other hand on the reciprocal repulsion of the proton/electron because of their equal magnetic spin ( $M +1/2/M +1/2$ ). This results in a so-called *charge ↔ mag bond*.  
In the atomic nucleus, every “nuclear” electron is bound by such a *charge ↔ mag bond* to a minimum and a maximum of *two* protons. The equal amount of magnetic spin prevents the electron and protons from touching physically.  
In terms of forces, protons and “nuclear” electrons can coexist inside the atomic nucleus. Heisenberg’s uncertainty principle has been misinterpreted as it *applies only during measurements*.
- **System with five instead of four basic forces:**  
These four elementary forces of the proton and electron, together with the centrifugal force of the electron *which cannot be measured* result in the five most elementary (= autonomous) forces of the atom. Of these five forces, only four manifest themselves. These five autonomous forces of the atom have been systematically deduced and replace the current scientific system of four fundamental forces. See also document C1.
- **All forces on matter are systematically deduced;**  
In the documents C1 – C4, available on [www.uitewijkwinkel.eu](http://www.uitewijkwinkel.eu), the author has systematically deduced all fundamental forces acting on ordinary matter (17 forces), on black-hole matter (11 forces) and on antimatter (16 forces). Special attention for the origin of gravity (document E3).  
Most forces of the atom are a result of movements of said atom in the universe. See document C2.
- **Mass, charge and magnetic spin are the only elementary characteristics:**  
The four basic building blocks of matter are themselves comprised of even smaller particles that are characterized by, apart from kinetic energy, only three elementary physical characteristics:
  - a *rational fraction* of mass ( $m$ ),
  - a *rational fraction* of charge/charge force ( $L$ ),
  - a *rational fraction* of magnetic spin/ spin force ( $M$ ),
 of the (anti-)proton or the (anti-)electron. These elementary particles possess no other physical or chemical characteristic or force such as for instance gravitation!  
In schema 1 of this document, the mass ( $m$ ), charge ( $L$ ) and magnetic spin ( $M$ ) of each elementary particle are given *quantitatively*.
- **$E = mc^2$  applies only during annihilation but not as Einstein envisioned:**  
The author puts forward that  $E = mc^2$  applies only for rotary velocities of photons which rotate around their axes with the speed of light *within* the particle of matter. This rotary velocity *inside* of matter is however *not perceptible* on the outside of the proton, electron, atom or object.

The equation  $E = mc^2$  of Uiterwijk Winkel only applies on cancellation of these imperceptible, speed of light ( $c_r$ ) rotations of rotary-photons within matter with a kinetic rotary energy of:

$E = \frac{1}{2} m(e)c_r^2$ . On annihilation, the rotation of both particles is cancelled and energy is released:

$$E = 2 \times \frac{1}{2} m(e)c_r^2 = m(e)c_r^2.$$

Both counter-rotating rotary photons are transformed back to ordinary photons in the process.

This reciprocal cancellation of rotational velocity ( $c_r$ ) completely conforms to  $E = mc^2$  although *none of the involved matter* of the photons is transformed into energy! The author proposes that  $E = mc^2$  as Einstein envisioned is invalid because mass ( $m$ ) cannot be transformed into energy! See also hypotheses in chapter 5.

In current science, all velocities of particles and their kinetic energies are unjustly attributed to mass ( $m$ ). The energy released *on annihilation* in particle accelerators is also completely taken into account in calculating the mass of elementary particles using Einstein's  $E = mc^2$ ! This is an error. See also chapter 4.1.

- **All elementary particles possess mass, charge and magnetic spin:**

It is put forward in this document that the enormous quantities of practically imperceptible photinos, as well as photons do possess mass ( $m$ ), although this mass interacts very weakly or not at all with the matter of measuring equipment.

The physical characteristics of photinos and photons in terms of charge ( $L$ ) and magnetic spin ( $M$ ) also lack a strong interaction, making these particles practically or completely impossible to perceive or measure.

#### **\*4) ELEMENTARY PARTICLE RESEARCH:**

The four basic building blocks of matter, the (anti-)proton and the (anti-)electron, are made up of even smaller particles.

*Current science* divides the proton and neutron into three quarks and theorizes about these quarks being made up of strings. The electron is currently regarded as being indivisible.

*Current science* acknowledges heavy and super heavy quarks and leptons. No explanation is put forth on what constitutes these heavy and super heavy particles. How matter can be formed from energy is also not known. Using Einstein's  $E = mc^2$ , science has no theory on how the matter of quarks, protons and electrons came into being. This is the problem at the core of the Big Bang theory.

The structure of the proton, neutron and electron cannot be unraveled using simple techniques. 'Dissection' into ever smaller elementary particles of matter to come to the apparently 'matter-less' particles is mainly done in particle accelerators. There, many kinds of particle matter and sometimes antimatter is collided at speeds up to the speed of light into each other or into other matter. These colliding particles disintegrate into fragments of matter, *among which* are the true elementary particles of the different levels of matter formation.

Particle accelerators constitute a *very heavy-handed method* of dissecting protons, neutrons and electrons. The author proposes that these experiments result in a chaotic mixture of many particles from the lower levels of matter formation. These collisions also generate apparently "matter-less" particles in the form of photons and photinos.

Because of the unknown number of matter formation levels, the results of these collision experiments are unpredictable and far from ordered. It is impossible for scientists to ascertain which of the generated particles can be characterized as true elementary particles.

The mix of released particles is detected using different techniques after which the particles are selected using supercomputers and the physical values such as charge are determined. Mass is *calculated* using Einstein's  $E = mc^2$ . This so-called mass is described in terms of  $\text{GeV}/c^2$ .

The values of magnetic spin ( $M$ ), charge ( $L$ ) and mass ( $m$ ) as rational fractions of the proton and electron are currently lacking for these particles! The current situation could therefore bear improvement.

#### **4.1 FORMATION OF LARGER PARTICLES IMMEDIATELY AFTER COLLISION:**

The author discerns four basic building blocks of matter, all of which possess *by definition*:

- an *elementary charge* ( $L = +1$  or  $-1$ ),
- an *elementary magnetic spin* ( $M = +1/2$  or  $-1/2$ ),
- a mass ( $m_p$ ) of the proton or mass ( $m_e$ ) of the electron and
- kinetic energy ( $E$ )

All smaller elementary fragments of (anti-)matter together with photons and photinos released during collision therefore also *by definition* possess a *rational fraction* of  $L$ ,  $M$  and  $m$  of the (anti-)proton or (anti-)electron. In schema 1 of this document, these three most elementary values are deduced and quantified for all elementary particles.

This presence of charge and magnetic spin inevitably causes formation of larger, possible stable particles immediately after collision but *before detection and measurement*.

*Selectively separating* these formations from the true, stable elementary particles is technically extremely difficult. In practical terms it is impossible. These formations during collision experiments cause errors in observations.

## 4.2 ANNIHILATION TAKES PLACE INSIDE PARTICLE ACCELERATORS:

Current consensus is that the proton and neutron consist of three quarks. These can be ordinary quarks (in the proton and neutron) or antiquarks (in the antiproton and antineutron). The proton and neutron are *not* structures built up of both quarks and antiquarks, as in the current view, this would lead to immediate annihilation!

As a consequence, only *ordinary quarks* can be generated from collisions of for instance protons in particle accelerators, and no *antiquarks* are possible.

However, in this document the author deduces that ordinary matter consists for about 40% of particles of antimatter and for 60% of elementary particles of ordinary matter. Collision experiments in particle accelerators therefore result in  $2 \times 40\% = 80\%$  of all (anti-)matter being annihilated. This releases a great deal of energy in the form of photons and photinos and leaves only around 20% in the form of ordinary elementary particle matter in which post-collision formation of larger particles can occur.

Due to this “internal” annihilation, only 20% of the proton’s ordinary elementary particles remain to be detected. As a result, instead of 100%, only 20% of the starting matter is detected. This 20% consists of only *ordinary matter*. All *antimatter particles* remain undetected even though they were part of the ordinary matter proton!

This process confirms the assumption that ordinary matter consists of only ordinary elementary particles! The antimatter is only detected in the form of visible light- and infrared photons or in the form of photinos, and these are not linked to the possibility of annihilation.

The occurrence of photons and photinos is of course a logical side effect of particle matter colliding at very high speeds!

Experiments in particle accelerators systematically disregard *this annihilation*. During annihilation, a lot of energy is released as photons. Up until at least 2008, this energy has been attributed to the mass ( $m$ ) in  $\text{GeV}/c^2$  of other detected particles by using  $E = mc^2$ ! The disregarded annihilation results in *serious calculation- and interpretation errors* with regards to the mass of elementary particles in current particle research. The author proposes this also explains the energy- and mass levels of charm/strange and top/bottom. (The author puts forth that annihilation of up to 80% occurs not only in particle accelerators, but also in nuclear fusion- and nuclear fission explosions. *Complete, 100% annihilation*, as Einstein predicts in his theory of relativity, *never occurs*!)

## \*5) ANALYSIS AND HYPOTHESES:

Considering matter as being composited of elementary particles, the author uses currently widely accepted assumptions as described in hypothesis 1. From these assumptions however, the author reaches conclusions quite different from current scientific consensus. This will become clear in the other hypotheses.

### Hypothesis 1: Four basic building blocks of matter, all with just three physical characteristics:

- All forms of matter consist of just four basic building blocks of matter: the proton/antiproton and the electron antielectron. These are the smallest particles of stable complete matter and antimatter. They all possess the physical values of:
  1. mass ( $m$ ),
  2. an elementary charge ( $L$ ) of +1 or -1 and
  3. an elementary magnetic spin ( $M$ ) of +1/2 or -1/2

The neutron is unstable and made up of one proton and one neutron. It is therefore not a basic building block of the atom in its own right.

- These four basic building blocks of matter are present in the following combinations of ( $L$ ) and ( $M$ ):
  1. the proton:  $(m_p, L + 1, M + 1/2)$ ,
  2. the antiproton:  $(m_p, L - 1, M - 1/2)$ ,
  3. the electron:  $(m_e, L - 1, M + 1/2)$ ,
  4. the antielectron:  $(m_e, L + 1, M - 1/2)$ .
  
- The mass of a proton is exactly equal to that of an antiproton. Much less massive, the mass of an electron is equal to that of an antielectron. The charge and magnetic spin of the (anti)proton and the (anti)electron are also exactly equal, apart from sign and direction.

**Hypothesis 2: similar structure of protons and electrons:**

- All four basic building blocks are made up of smaller particles of matter.
  
- To arrive at whole values of charge (+/- 1) or magnetic spin (+/- 1/2), these building blocks must be completely logical in structure. They must be characterized by the *same system of symmetry* and the same number of levels of matter formation.
  
- Charge ( $L$ ) seems to be centered on the elementary particle, whereas magnetic spin, due to the standard rotation, manifests itself mainly at both poles, in effect creating a magnetic dipole.

**Hypothesis 3: The physical characteristics of the sub-particles can be expressed as rational fractions:**

- All imaginable particles are derived from either the (anti)proton or the (anti)electron are therefore possess rational fractions of the mass ( $m$ ), charge ( $L$ ) and magnetic spin ( $M$ ) of the (anti)proton or (anti)electron.

**Hypothesis 4: The lowest level of *mass* is formed by photinos/neutrino's/Higgs particles:**

- At the *very lowest level*, the author sees mass ( $m$ ) as *two stationary vibrations lacking rotation*. These are the stationary vibration of the infrared proton photino/neutrino/Higgs particle (**figure 1a**) and that of the light electron photino/neutrino/Higgs particle (**figure 1b**):
  
- **See these figures 1a and 1b in the parallel document.**
  
- Both photinos are structured similarly as stationary vibrations although they differ in size. These stationary vibrations or waves generate in these photinos/neutrino's/Higgs particle only the phenomenon of *mass* ( $m$ ). The light photinos/Higgs particles possess shorter base frequency than the infrared photino/Higgs particles and therefore exhibits less mass. The mass of the proton photino/Higgs particle is about three times the size of that of the electron photino/Higgs particle.
  
- Thus, the author envisions both basic photinos/Higgs particles as *stationary vibrations* between two endpoints which are probably more or less fixed. The amplitude, frequency and length are by definition not measurable and therefore unknown. Mass ( $m$ ) is the most elementary characteristic of matter.

- The phenomenon of mass can in no way be switched off, annulled, altered or destroyed. Mass is an absolutely immutable physical phenomenon and value. This in effect constitutes the law of conservation of mass. There is no exception to this law.
- Apart from differences in size, frequency, kinetic energy and mass, no essential differences exist between these two basic forms of free photinos/neutrino's/Higgs particles.
- The infrared photinos/Higgs particles are the very lowest level of the (anti)proton while the smaller light photinos/Higgs particles are the very lowest level of the (anti)electron.
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**Hypothesis 5: The photino's/neutrino's/Higgs particle charge and magnetic spin is generated later, both by rotation of this stationary vibration along its long axis:**

- These stationary vibrations of both photinos mentioned in hypothesis 4 also exhibit a basic rotation along *their long axis*. This rotation can be left (C)/(LO) or right (AC)/(RO), in other words clockwise (C) or anticlockwise (AC). This rotation causes the center of the stationary vibrations of **figures 1a and 1b** to move slightly off their long axes, making an ellipsoid shape.
- This rotation around the long axis allows both photinos/Higgs particles to be spatially visualized as two oval, hollow "rugby balls" of different dimensions, rotating either left (L) or right (R) around their long axes.
- This basic rotation around the long axis causes both charge ( $L$ ) and magnetic spin ( $M$ ). See **figures 2a and 2b**. The attractive force between the north- and south poles supports the curvature of both stationary vibrations and with it, their rotations. This makes it impossible to switch off or destroy this elementary basic rotation of photinos.  
The properties of this elementary charge and magnetic spin are, like mass, impossible to alter, switch off or destroy. This in effect is the basis for the laws of conservation of mass and momentum.
- *The mass of both photinos/Higgs particle is constant and is not influenced by any linear or rotational speed acting on them.*
- The charge and magnetic spin of the right (AC) rotating photinos is opposite from that of the left (C) rotating photino. These (AC) and (C) photinos/Higgs particle therefore are physically each other's antiparticles.
- The direction of rotation does not influence the *mass* of the photino/Higgs particle. The rotation of the (L) photino causes the same mass as the rotation of the (R) photino. There is no physical phenomenon as anti-mass.
- This elementary rotation along the long axis (C) or (AC) cannot be transformed in heat or light, nor is the opposite possible. Being each other's antiparticles, these photinos/Higgs particles attract each other because of their opposite charge and magnetic spin!
- Although these photinos are in effect 'opposite' matter to each other, it is not possible for annihilation to take place. This is because photinos already reside on the lowest level of matter, mass, rotation or energy! The photino's/Higgs particle rotation cannot be transformed into energy.
- These rotating photinos/Higgs always possess a, not measurable mass ( $m$ ), charge ( $L$ ) and magnetic spin ( $M$ ).

- Loose photinos move through the galaxy at speeds exceeding the speed of light. (Bound photinos cannot move faster than the speed of light)
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**Hypothesis 6: secondary rotation of photinos around their short axis:**

- Unbound, these photinos can rotate back and forth around *their short axes*. Theoretically, this allows for a maximum of four rotational movements for these loose light electron photinos (from now on: e.photinos) and loose infrared proton photinos (from now on: p.photinos). These movements are the same for both types of photino/Higgs particle.
- Because of these free rotations along both the long and short axes, these loose photinos do not exhibit any interaction with matter such as atoms or molecules. Therefore, both types of photino *seemingly* possess no measurable characteristics of matter such as “mass”, “charge” or “magnetic spin”. Loose p.photinos and e.photinos with  $v > c$  cannot be measured by us.
- The four combinations of rotation result in the same combinations of charge (L) and magnetic spin (M) for both photinos:
  - \* four combinations of visible light e.photinos: (L+,M-), (L-,M-), (L+,M+), (L-,M+).
  - \* four combinations of infrared p.photinos: (L+,M-), (L-,M-), (L+,M+), (L-,M+).
- See **figures 3a and 3b**.

**Hypothesis 7: only rotation around the long axis is possible in constructs:**

- (C)/(LO) and (AC)/(RO) photinos, having opposite charge and magnetic spin, attract each other by way of both (L) and (M). They form larger constructs with each other, even though they are technically each other’s antiparticles!!
- Because charge and magnetic spin cannot be destroyed, this photino must, at the least, be able to freely rotate around its long axis. There can be no physical contact between photinos, as this would cancel out the elementary rotation.
- This free rotation is only possible if *the bonds* formed exhibit:
  - \* an attraction through charge combined with a repulsion through magnetic spin (= a charge ↔ mag bond) or
  - \* an attraction through magnetic spin combined with a repulsion through charge (= a mag ↔ charge bond).
 At the subatomic level of elementary particles, these are the *only* bond varieties without direct physical contact between particles.
- These bonds only form when there is a construct of particles that are exactly each other’s antimatter.
- In these larger constructs, photinos can *only rotate freely around their long axis and cannot rotate around their short axis*. This applies to both light and infrared photinos.
- Only two of four rotations remain with rotation around only the long axis:
  - \*) two combinations of (L) and (M) with regards to the smaller light e.photinos: (L-, M+) and (L+, M-)
  - \*) two combinations of (L) and (M) with regards to the three times larger infrared p.photinos: (L+, M+) and (L-, M-).
 This brings us back to **figures 2a and 2b** of the parallel document..

- The differences in the combinations of +/- signs described above are the result of the long axis of the light photino being at a right angle to the long axis of the infrared photino. (Were this not the case, the proton and the electron in a neutron would annihilate together. This annihilation is impossible only if the rotation axes of the proton and underlying levels of matter formation are at right angles to those of the electron and its underlying levels. This positioning results in the aforementioned combinations of signs in charge and magnetic spin, originating in the lowest level of photinos.
- The author's cycle of the universe shows that all photinos in the universe originate from matter in which these photinos could only rotate around their long axes. Photinos rotating around their short axes are therefore extremely rare in the universe.  
Because of this, as a rule, both p.photinos/Higgs particles exhibit the combinations (L+, M+) and (L-, M-) and both e.photinos/Higgs particles exhibit the combinations (L-, M+) and (L+, M-).
- The characteristic combinations of (L+, M+) and (L-, M-) of both p.photinos are carried through to all higher elementary particles up to the (anti)proton.  
The characteristic combinations of (L-, M+) and (L+, M-) of both e.photinos are also carried through to all higher elementary particles up to the (anti)electron.

#### **Hypothesis 8: the formation of *photons* only from similar photinos:**

- Because of size differences between photino varieties, larger *constructs* are only possible using only infrared proton photinos/Higgs particles/neutrinos, which must also be opposite in charge and magnetic spin. Constructs of e.photinos are only possible using only the smaller light photinos/Higgs particles which must also be opposite in charge and magnetic spin.
- Constructs of infrared p.photinos/neutrino's together with light e.photinos/neutrino's are not possible. There is no match possible due to the size difference and due to the combination of +/- sign of both charge and magnetic spin. *Charge* ↔ *mag* or *mag* ↔ *charge* bonds cannot be formed in constructs consisting of both e.photinos/neutrino's and p.photinos/neutrino's.

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#### **Hypothesis 9: the light photon and the infrared photon as solid rhombus shape of five photinos:**

- Five *infrared p.photinos/neutrino's*, consisting of 4 (C)/(LO) and 1 (AC)/(RO) or 1 (C)(LO) and 4 (AC)/(RO) can form a maximum of *two* stable rhombus shapes leading to the a) infrared photon and b) the anti-proton photon.
- At each corner of these *two rhombus shapes*, the same bond can be found, consisting of:  
\*) a charge bond combined with repulsion through magnetic spin; *a charge* ↔ *mag bond* or;  
\*) a magnetic spin bond combined with repulsion through charge (L); *a mag* ↔ *charge bond*.
- At *all corners* of these two rhombus shapes of the infrared photon, the (LO) and (RO) photinos can't make physical contact. This prevents these five photinos from exchanging any rotational energy, and allows them to rotate freely along their long axis in a bound state, while being each other's antimatter!
- See **figures 4a and 4b** in the parallel document.
- The first step in matter formation from photinos to photons occurs around black holes, among other places. All stars, galaxies and black holes emit electric and electromagnetic fields, deflecting the trajectories of photinos by a few degrees every 50.000 – 100.000 years. The deflection is of a

magnitude that prevents photinos from leaving the universe. (Uiterwijk Winkel's Universe laws of mass and energy) The universe's radius is somewhere between 1.0 – 2.0 billion light years.

- Photinos, moving faster than the speed of light, are captured in orbits around one of the central black holes of a galaxy through their charge and magnetic spin. In this orbit, the photinos/neutrino's spiral inwards toward the black hole in a matter of billions of years.
- During this time, five equivalent photinos in proportions 4 (C)/(LO) : 1 (AC)/(RO) or 1 (C)/(LO) : 4 (AC)/(RO) combine into a rhombus shape forming the structure of an infrared photon or its anti-form. Only two stable photons can be formed. The speed of the infrared photon is limited to the speed of light.
- From the aforementioned light photinos/neutrino's, in proportions 1 : 4 or 4 : 1, another two stable rhombus shapes can be made which lead to c) the light photon and d) the anti-light photon. The speed of these light photons is limited to the speed of light.
- The 4 : 1 / 1 : 4 proportion of particles which are essentially opposite matter/antimatter starts at the lowest level of photons and leads to *two ordinary photons* and *two anti-photons*.
- At the corners of these four possible photons, a *charge ↔ mag bond* or a *mag ↔ charge bond* is present. At all corners of these rhombus shapes, the (C)/(LO) and (AC)/(RO) particles cannot make physical contact with each other.
- See the **figures 5a and 5b** in the parallel document.
- Constructs consisting of both p.- and e.photinos/neutrinos/Higgs particles are not possible due to the difference in size and mass, and the lack of matching charge or magnetic spin. This means a maximum of four stable constructs of photinos is possible, in the form of *two infrared photons* and *two light photons*.
- Only these four rhombus shapes are possible with five similar photinos in proportions of 4 : 1 and 1 : 4. Larger stable constructs are not possible. Only the constructs of five photinos are stable even though they are a mix of ordinary matter and antimatter particles! Velocity of such constructs is limited to the speed of light! Exceeding that limit causes the photon to disintegrate into its photinos. This happens in nuclear fusion and fission reactions.
- Both *photons* are opposite in charge and magnetic spin and as such, just as in the case of photinos, are effectively each other's *opposite matter*, *between which no annihilation is possible*. Between photons with an opposite charge, annihilation is also impossible.
- Because of the rhombus shape encompassing five photinos, both the *charge* and the *magnetic spin* of both p.photons increases *three-fold* relative to the photinos. *Mass* however, increases five-fold relative to the photinos. The same applies to both e.photons relative to the e.photinos.
- Through the formation of photons, the linear velocity of photinos, once exceeding the speed of light, is brought back to at most the speed of light ( $v_{\max} = c$ ). In this process, kinetic energy is released and transformed into rotation of the photon (C) or (AC), conforming to the law of conservation of momentum. These clusters of five photinos, or photons, are the smallest particles to exhibit some interaction with matter.

**Hypotheses 10: The transition of “matter-less” – “matter” in the universe in an orbit around a black hole; the emergence of *matter* by rotation of photons and measurable mass:**

- In the universe, sooner or later all photinos are combined into one of four possible stable forms of photons. Because of the three-fold increase in charge and magnetic spin, the trajectories of these photons are deflected more intensely by the magnetic fields in the universe, and as a result these trajectories are more curved. Because of this, over time, these photons will rotate around their short axes with ever greater velocities, while their linear velocity through the universe decreases. Eventually, the photon rotates around its axis with the speed of light, while its linear velocity has decreased to practically zero.  
This process of decreasing linear velocity and increasing rotational velocity happens over billions of years.
- The phenomenon of *matter* emerges only when these *apparently matter- and mass-less* photons of both the light and infrared varieties are brought to that state of rotation around their short axis with speed of light. The four photons are thus transformed into *rotary photons*. These rotary photons possess the physical characteristic of “*matter*” and this matter possesses measurable physical properties. The apparently “matter-less” photon is transformed to a “matter” rotary photon through rotation with the speed of light.  
The original direction of the photon is preserved. The photon cannot change rotational direction.
- In the universe, the transitions of matter-less photinos into photons and of photons into rotary photons occurs at a large scale around black holes.
- During this process of *matter formation*, the mass, charge and magnetic spin are not changed. The mass, charge and magnetic spin of photons is exactly equal to that of rotary photons.

See **figures 6a and 6b** in the parallel document.

- The speed of light rotation of a rotary photon coincides with the moment that the most basic characteristics of matter, mass ( $m$ ), charge ( $L$ ), magnetic spin ( $M$ ) and kinetic energy ( $E$ ) can be measured.
- “Internally”, the two proton rotary photons rotate opposite to each other. They attract each other through their opposite charge and opposite magnetic spin. Both rotary photons (LO) and (RO) are now *completely each other’s opposite matter*. As such, (C) and (AC) rotary photons can annihilate and in doing so “degrade” into photons (**figures 4 and 5**) or even into loose photinos (**figures 3a and 3b**).
- On annihilation, the rotation of both rotary photons is removed, freeing the photons that move *once again at the speed of light*. This annihilation follows  $E = mc^2$  but no mass is transformed into energy the way Einstein envisioned. This also applies to the two rotary photons of the electron.
- *Matter is a physical phenomenon, connected to the rotational speed-of-light velocity of the rotary photon!* Mass is a phenomenon of the very lowest, principally imperceptible level. Only when something becomes matter, its charge ( $L$ ), magnetic spin ( $M$ ) and mass ( $m$ ) become perceptible to us.
- All particles of ordinary matter, black hole matter and antimatter are at the *most basic level* of matter formation *constructs of photons* rotating around their axes with the speed of light. Rotary photons form this lowest level of perceptible matter.

### **Hypothesis 11: No annihilation between rotary photons of the proton and of the electron:**

No rotary photon of the proton can annihilate with a rotary photon of the electron. This is prevented by both the *difference in size* and by the *difference in sign* of charge and/or magnetic spin. The charge and magnetic spin of the proton rotary photon and the electron rotary photon cannot be matched in a way that allows simultaneous attraction through both charge and magnetic spin.

### **Hypothesis 12: The 4 : 1 and 1 : 4 proportion rhombus shapes return up to the level of the (anti-)proton and the (anti-)electron:**

- From the rotary photon, matter formation proceeds through strings, quarks and results in either the (anti-)proton or the (anti-)electron.
- All the rhombus shapes between the photinos and those of the (anti-)proton and (anti-)electron are only possible if, at the higher levels, both formed particles are 100% each other's antimatter. Only then can these particles be used to create larger constructs using both *charge* ↔ *mag* and *mag* ↔ *charge* bonds.
- The rhombus shape also guarantees that just two *stable* particles can be formed at each higher level of matter formation which are each other's exact opposite in shape and matter variety. Both particles exhibit exactly the *opposite charge* and *magnetic spin*.
- The rhombus shape can be found in all levels of matter formation up to the (anti-)proton and the (anti-)electron. These stable rhombus shapes of clusters photinos / photons encompass:
  - \* rotary photons (**figure 6 and 7**),
  - \* strings (**figure 8 and 9**),
    - 5 infrared strings result in 1 one (anti-)proton quark; **figure 10a and 10**,
    - 5 light strings result in 1 one (anti-)electron quark; **figure 11a and 11b**,
  - \* quarks (**figure 10 and 11**) and finallyIn the proton/anti-proton and the electron/anti-electron (**figures 12, 13, 14 and 15**).

**The proton (figure 12) consists of 5 quarks, 25 strings, 125 rotor photons, 125 photons and 625 photinos,**

**The anti-proton (figure 13) consists of 5 quarks, 25 strings, 125 rotor photons, 125 photons, 625 photinos,**

**The electron (figure 14) consists of 5 quarks, 25 strings, 125 rotor photons, 125 photons and 625 photinos,**

**The anti-electron (figure 15) consists 5 quarks, 25 strings, 125 rotor photons, 125 photons, 625 photinos.**

- The four basic building blocks of ordinary atoms, black-hole atoms and anti-atoms are based on exactly the same rhombus shapes of, on the lowest level, apparently matter- and mass-less clusters of five photinos/photons.
- 

### **Hypothesis 13: At all levels, matter and antimatter are mixed in 4 : 1 or 1 : 4 proportions:**

- Based on the rhombus shape present at all levels, ordinary matter (protons and electrons) consist for  $76/125^{\text{th}}$  part of elementary rotary photons and for  $49/125^{\text{th}}$  part of elementary anti rotary photons. (These values seem to be different from **figures 12 and 14**. They can be explained by the fact that matter and antimatter are at all levels of matter formation 4 : 1 or 1 : 4 mixtures of both).

- Antimatter consist for  $49/125^{\text{th}}$  part of elementary rotary photons ordinary matter and for  $76/125^{\text{th}}$  part of elementary rotary photons antimatter. (These values seem to be different from **figures 13 and 15** because of the fact that matter and antimatter are at all levels of matter formation 4 : 1 or 1 : 4 mixtures of both).
- In collision experiments in particle accelerators between for instance ordinary protons,  $49/125^{\text{th}}$  part is released as rotary photons antiparticles and those antiparticles will annihilate with  $49/125^{\text{th}}$  part of ordinary particles. This means 80% of the colliding protons annihilates, leaving only 20% in the form of regular matter to be detected! The antimatter particles are not detected at all!
- The energy released during these annihilations is currently interpreted by science as mass through  $E = mc^2$ . This ‘mass’ is wrongly attributed to other released particles.
- Only 80% of ordinary matter can be converted to energy, not 100% as proposed by the theory of relativity!

#### **Hypothesis 14: mass possessed by matter cannot be converted to energy:**

- Energy released in such a way manifests itself always in the form of photons. These photons still possess mass after annihilation and this mass equals the mass before annihilation.
- On annihilation, all rotary photons are equally stripped of their rotary light-speed velocities (C) and (AC). This causes them to lose their *measurable* characteristics of: matter, mass, charge and magnetic spin. The photons or clusters of photinos are released as linear radiation with the speed of light. This is why *photons seem* to lack matter, mass, charge and magnetic spin but this is false. The rotary photons removed of their rotation move as photons with the speed of light.

#### **Hypothesis 15: annihilation:**

- Complete annihilation occurs between *each* ordinary particle and its *equivalent* antimatter particle because both particles attract each other, at all levels of matter formation, through both their charge (L) and their magnetic spin (M). This opposite charge combined with opposite magnetic spin can only occur when both particles rotate completely oppositely down to the lowest level of matter formation. Only then do these matter and antimatter particles possess an equal number of photons rotating (LO) at the speed of light photons rotating (RO) at the speed of light, to generate both an opposite charge and opposite magnetic spin at all above levels.
- It is only in this case that *full physical contact* can be established between two particles at all levels of matter formation through both charge bonds and magnetic bonds. This physical contact can then be made at all levels of matter formation.
- Such a bond between equal particles matter and antimatter leads to complete physical contact and to the reciprocal cancellation of *all* “internal” rotational velocity of the photons rotating with speed of light  $c_r$ . All present rotary photons are “degraded” to apparently mass- and matter-less photons, moving at the speed of light.
- The cancellation of both rotations results in  $E = 2 \times \frac{1}{2} m v_r^2$  which at  $v_r = c$  results in  $E = mc^2$ . This is however just the transformation of kinetic rotational velocity/energy of “matter” into heat;

predominantly in the form of infrared photons. None of the present “mass” is transformed into heat or energy! Einstein’s  $E = mc^2$  is thus illusory!

- The transformation of rotary photon  $\rightarrow$  photon conforms to  $E = mc^2$  although Uiterwijk Winkel’s equation is in quite different from what Einstein had in mind, for in Uiterwijk Winkel’s version, no mass is converted to energy!
- The formation of matter through Uiterwijk Winkel’s  $E = mc^2$  is reversed near black holes “mass”-possessing photons are brought into rotation with the speed of light around their axes, whereupon they transform back into “matter”-exhibiting rotary photons. Uiterwijk Winkel’s  $E = mc^2$  therefore works both ways.
- Based on the phenomenon of annihilation, ordinary matter, black-hole matter and antimatter must at the lowest level of matter formation consist of apparently ‘matter-less’ and ‘mass-less’ photons.

#### **Hypothesis 16: Complete annihilation of photons is only possible with rhombus-shaped constructs:**

- To be able to annihilate, all equivalent particles of ordinary- and antimatter must, at the lowest level of matter formation (that of the rotary photons), be made up of an exact equal number of left-rotating (C) and right-rotating (AC) particles (rotating with the speed of light).
- Complete annihilation is only possible when at *all levels of matter formation* of the annihilating particles, rhombus-shaped construct are found that consist of five particles of which 4 are exactly equal and one is the antiparticle of the other four.
- Applying the rhombus shape consistently throughout all levels ensures that all elementary particles *ordinary matter* and their *accompanying anti-particles* are each other’s *exact counterpart*. At all levels of matter formation, the proportional composition of both particles is such that at the lowest level of matter (that of the rotary photons), the number of rotary photons rotating left (C) and the number rotating right (AC) of both particles together is equal.
- Because of annihilation, this state of being each other’s counterpart must hold, not only on the lowest level of matter formation, but in all levels up to the (anti-)proton and the (anti-)electron. It must also hold below the level of matter formation, for photons and photinos!
- The rotation (C) and (AC) is at the basis of the duality of all forces in terms of positive versus negative. The rhombus shape is at the basis of the symmetry in structure in matter and matter formation.

#### **Hypothesis 17: annihilation’s consequences for relativity theory:**

- The validity of  $E = mc^2$  is limited by the author to rotational velocity of rotary photons. This means relativity theory must be rejected as a theory that seems correct but, like a fata morgana, is fundamentally wrong.
- The equation  $E = mc^2$  applies only to *the invisible “internal”* rotational velocity of matter but does not apply to *“external” linear velocity nor to “external” forms of rotational velocity* of any particle in the universe!

- The equation  $E = mc^2$  also may not be used in particle accelerators to determine the mass of a particle in terms of  $\text{GeV}/c^2$ . Small amounts of mass can just as well be determined in pico-, femto- or attograms.

## 5.1 CONCLUSION: STANDARD MODEL MUST BE VALID BOTH TOP/DOWN AND BOTTOM/UP:

In deducing the “Elementary Particles Model 2008”, the author starts his hypotheses *bottom up* at the two apparently “matter- and mass-less” photinos which end up, through five subsequent levels of matter formation in rhombus shapes, at the (anti-)protons and the (anti-)electrons.

This “Elementary Particle Model 2008” is valid both *bottom-up* and *top-down*.

## \*6) ELABORATION OF HYPOTHESES OF THE ELEMENTARY PARTICLES MODEL 2008:

In this chapter, the structure of the proton and electron as well as their anti-varieties is examined. The mass ( $m$ ), charge ( $L$ ) and magnetic spin ( $M$ ) are derived as rational fractions of the proton or electron for all elementary particles at all levels of matter formation.

## 6.1 STRUCTURE OF THE ELEMENTARY PARTICLE MODEL 2008:

The author distinguished four levels of matter formation occurring through the 5 particle rhombus shapes. With the proton and electron as references, going down one level causes the charge and magnetic spin of particles to decrease by  $1/3^{\text{rd}}$  while mass decreases by  $1/5^{\text{th}}$ .

In general, for elementary particles the following applies:

- $L = \pm(1/3)^n \times$  the charge of the proton/electron;
- $M = \pm \frac{1}{2} (1/3)^n \times$  the spin of the proton/electron;
- $m = (1/5)^n \times$  the mass of the proton/electron.

Where  $n$  is the number of levels with matter formation through the rhombus shape.

The following values for  $n$  apply for the described elementary particles:

- $n = 4$  Photinos
- $n = 3$  Rotary photons
- $n = 2$  Strings
- $n = 1$  Quarks
- $n = 0$  (anti-)Protons and (anti-)electrons.

According to the author, the structure of matter is regulated through rhombus shaped as follows:

-a) apparently “matter- and massless” levels of incomplete matter:

- level 1) photinos of the proton/electron ( $n = 4$ )
- level 2) clusters of five photinos; photons\*), ( $n = 3$ )

-b) “matter- and mass-possessing” levels of incomplete matter:

- level 3) rotary photons ( $n = 3$ )
- level 4) strings\*), ( $n = 2$ )
- level 5) quarks\*), ( $n = 1$ )

-c) matter-possessing, lowest form of complete matter:  
level 6) (anti-)protons and (anti-)electrons\*)( $n = 0$ )

-d) atoms made up of building blocks of complete matter:  
level 7) regular atoms, black-hole atoms, anti-atoms.

In the author's current system, (anti-)protons and (anti-)electrons are all made up of exactly 625 photinos. The proton weighs 1843 times as much as the electron. This means that the *photino* of the proton must possess around three times the mass of the electron photino ( $1843/625 = 2,95$ ).

The repeating rhombus shape characterizing the structure of elementary particles lies at the basis of Uiterwijk Winkel's "Elementary Particle Model 2008". This model consists of four layers of ever smaller rhombus-shapes.

- In the case that lower levels of matter formation are discovered (for instance  $n = 5$  or  $n = 6$ ), photinos will occupy this lower level and  $m$ ,  $L$  and  $M$  of these photinos becomes smaller. If measurements at the LHC disprove or two levels than photinos occupy level  $n = 3$  or  $n = 2$ . The overall system will still be valid.
- Determining the levels of matter formation ( $n$ ) through experimentation is far from simple and perhaps even impossible. The number of photinos released on annihilation is after all not exactly quantifiable. In this case, the EPM theory cannot be proven or falsified. It can however be proven if during the collisions only photons are released.
- The number of levels ( $n$ ) must be such that all experimentally proven particles have a place in the EPM system. This applies to the particles that remain after correcting for Einstein's  $E = mc^2$ .

## 6.2 THE QUANTITATIVE STRUCTURE OF THE PROTON AND ELECTRON FROM PHOTINOS:

Based on the hypotheses of chapter 5, the author elaborates on the structure of the four basic building blocks of ordinary matter, black-hole matter and antimatter: the (anti-)proton and the (anti-)electron. This structure occurs via the rhombus-shape at all levels of matter formation.

### 6.2.1 MATTERLESS AND MASSLESS PHOTINOS ( $n = 4$ ):

At the lowest level of matter formation, all forms of matter (ordinary matter, antimatter and black-hole matter) are constructs of rotary photons which in turn are rhombus-shaped constructs of five loose proton infrared photinos/neutrino's/Higgs particles or five loose electron visible-light photinos/neutrino's/Higgs particles. The  $\pm$  positions of charge and magnetic spin of these p.- and e.photinos can be deduced through the rhombus-shape from the values for charge and magnetic spin of:

- a) The proton:  $(L + 1, M + 1/2) \leftrightarrow$  the anti-proton:  $(L - 1, M - 1/2)$ ,
- b) The electron:  $(L - 1, M + 1/2) \leftrightarrow$  the anti-electron:  $(L + 1, M - 1/2)$ .

#### 6.2.1.1 QUANTITATIVE PHYSICAL CHARACTERISTICS OF PHOTINOS

Using (C) and (AC) photinos, stable constructs can only be found in rhombus-shapes, resulting in *exactly two stable particles* at each level of matter formation, which form each other's antiparticle. Because of these fixed rhombus shape, charge and magnetic spin differ by a factor of 3 between subsequent levels, while "mass" differs

by a factor of 5. Using the formulas in 6.1, the following values for charge, magnetic spin and mass can be calculated for (C) and (AC) photinos ( $n = 4$ ), expressed as fractional parts of the (anti-)proton/electron:

**a) Two proton photinos (C) and (AC), travelling at speeds exceeding the speed of light c:**

- the proton photino nr.1:  $(L_p + 1/81) (M_p + 1/162)$ ,
- the anti-proton photino nr.2:  $(L_p - 1/81) (M_p - 1/162)$ ,
- mass proton photinos nr.1 and 2:  $1/625 m_{\text{proton}}$ .

Both protons are based on constructs of 625 of these two infrared p.photinos.

**b) Two electron photinos (LO) and (RO), travelling at speeds exceeding the speed of light c:**

- the electron photino nr.1:  $(L_e - 1/81) (M_e + 1/162)$ ,
- the anti-electron photino nr.2:  $(L_e + 1/81) (M_e - 1/162)$ ,
- mass electron photinos nr.1 en 2:  $1/625 m_{\text{electron}}$ .

**Notes :**

- ) All loose photinos/neutrino's/Higgs particles travel at speed exceeding the speed of light ( $v_{\text{min}} > c$ )
- ) Because of the fast rotation around its long axis and the *potential* to rotate around its short axis, photinos do not interact with matter in any way. That is why photinos can't be detected by equipment made up of atoms/molecules.
- ) Loose photinos are equated to (anti-)neutrino's/Higgs particles.
- ) Photinos possess the characteristics mass, charge, magnetic spin and kinetic energy although these characteristics cannot be observed qualitatively or measured quantitatively.
- ) Both proton photinos are each other's non-annihilating antimatter, as are both electron photinos.
- ) See **figures 1 a/b; figures 2 a/b** and **figures 3 a/b**.
- ) The combinations (L+ M+) en (L- M-) apply from p.photinos up to the proton/anti-proton.
- ) The combinations (L- M+) en (L+ M-) apply from e.photinos up to the electron/anti-electron.
- ) Assuming 625 photinos, the mass of proton photinos must be 2,95 times that of electron photinos.

**6.2.2 QUANTITATIVE STRUCTURE OF THE FOUR CLUSTERS OF PHOTINOS/PHOTONS ( $n = 3$ ):**

Because of the rhombus shape, at the level of photons  $n = 3$ . This results in the following proton photons and electron photons. See **figures 4 a/b** and **figures 5 a/b**.

**a) Two constructs of five proton photinos (1) and (2), travelling at speed not exceeding the speed of light c:**

- p.photon 1: made up of four proton photinos 1 and one proton photino 2:  $(L_p + 1/27) (M_p + 1/54)$ ,
- p.photon 2: made up of one proton photino 1 and four proton photinos 2:  $(L_p - 1/27) (M_p - 1/54)$ ,
- mass p.foton 1 and 2:  $1/125 m_{\text{proton}}$ .

**b) Two constructs of five electron photinos (LO) and (RO), travelling at speed not exceeding the speed of light c:**

- e.photon 1: made up of four electron photinos 1 and one electron photino 2:  $(L_e - 1/27) (M_p + 1/54)$ ,
- e.photon 2: made up of one electron photino 1 and four electron photinos 2:  $(L_e + 1/27) (M_p - 1/54)$ ,
- mass e.foton 1 and 2:  $1/125 m_{\text{electron}}$ .

These four photons, being constructs of five photinos, possess a charge (L) and magnetic spin (M) that is 3 times that of the constituent photinos and a mass (m) that is five times that of the constituent photinos. Therefore photons in the universe must exhibit a deflection three times greater than photinos.

**Notes:**

- ) Unlike loose photinos, photons are the first constructs to exhibit interactions with matter!
- ) These four photons do not exhibit measurable values of the characteristics: 1) matter, 2) mass, 3) charge (L)

and 4) magnetic spin ( $M$ ) but do exhibit interaction with the proton and the electron of the atom.  
 -) The two p.photons are unable to annihilate with each other, the same applies to the two e.photons.

### 6.2.3 QUANTITATIVE STRUCTURE OF ROTARY PHOTONS ( $n = 3$ ):

During the transition of non-detectable “mass- and matter-less” clusters of photinos/photons to detectable “mass- and matter-possessing” rotary photons, according to the author, nothing changes in terms of mass ( $m$ ), elementary charge ( $L$ ) or magnetic spin ( $M$ ) which stay the same as those of the photon.

Even though the values of mass, charge and magnetic spin are the same for the infrared rotary photons of **figure 6 a/b** as for the proton photon of **figure 4 a/b**, these characteristics have become *measurable* through the process of “materialization” occurring in rotary photons.

#### a) Two proton rotary photons, rotating around their axes with $c$ ( $n = 3$ ):

- the infrared proton p.rotary photon nr.1:  $(L_p + 1/27) (M_p + 1/54)$ ,
- the infrared anti-proton p.rotary photon nr.2 :  $(L_p - 1/27) (M_p - 1/54)$ ,
- mass proton rotary photons nr.1 en 2:  $1/125 m_{\text{proton}}$ .

Both p.rotary photons have become each other’s complete antimatter.

For the visible-light rotary photons of **figure 7 a/b**, the same combinations of mass, charge and magnetic spin apply as for the clusters of five visible-light photons in **figure 5 a/b**:

#### b) Two electron rotary photons (LO) and (RO), rotating around their axes with $c$ ( $n = 3$ ):

- the electron e.rotary photon nr.1:  $(L_e - 1/27) (M_e + 1/54)$ ,
- the anti-electron e.rotary photon nr.2  $(L_e + 1/27) (M_e - 1/54)$ ,
- mass electron rotary photons nr.1 en 2:  $1/125 m_{\text{electron}}$ .

Both e.rotary photons 1 and 2 have become each other’s complete antimatter.

#### Notes:

- ) These four rotary photons exhibit a measurable mass ( $m$ ), charge ( $L$ ), magnetic spin ( $M$ ).
- ) The direction of rotation of p.rotary photons nr. 1 and 2 are equal to those of photons nr. 1 and 2. The rotations of nr. 1 and 2 around the short axis is opposite in direction.
- ) Both rotary photons are opposite matter to each other and can therefore annihilate.
- ) This also applies to both e.rotary photons (LO) and (RO).
- ) The rotational axis of proton rotary photons are in principle perpendicular to that of the electron rotary photons.
- ) See **figures 6 a/b** and **figures 7 a/b**.

### 6.2.4 QUANTITATIVE STRUCTURE OF STRINGS ( $n = 2$ ):

Five proton rotary photons nr. 1 and 2, in a rhombus shape, allow for *charge*  $\leftrightarrow$  *mag bonds* and *mag*  $\leftrightarrow$  *charge bonds* to occur. This makes a total of two larger and stable constructs possible in the form of a proton p.string nr. 1 and 2. See **figures 8 a/b**.

Five electron rotary photons nr. 1 and 2 can likewise form a total of two larger stable constructs in the form of electron e.strings nr. 1 and 2. Again we see *two combinations* of five equivalent rotary photons in proportions 4 : 1 or 1 : 4 of nr. 1 and 2.

These are the only possible stable constructs of e.strings made up of 5 e.(rotary)photons and 25 e.photinos. Both e.strings nr. 1 and 2 are each other’s antimatter. The e.strings complex structure in terms of 25 e.photinos is reduced in **figures 9 a/b** to one electron e.string shaped like a yellow or green cylinder. In total this results in the formation of only *four different stable strings*;

The following combinations of charge and magnetic spin apply to the infrared proton strings of **figures 8 a/b**.

**a) The two strings of the ordinary proton and anti-proton; ( $n = 2$ ):**

- the proton string 1:  $(L p +1/9) (M p +1/18),$
- the anti-proton string 2:  $(L p -1/9) (M p - 1/18),$
- mass proton string 1 and 2:  $1/25 m_{\text{proton}}.$

The following combinations of charge and magnetic spin apply to the visible-light electron strings of **figures 9 a/b**.

**a) The two strings of the ordinary electron and anti-electron; ( $n = 2$ ):**

- the electron string 1:  $(L e -1/9) (M e +1/18),$
- the anti-electron string 2:  $(L e +1/9) (M e - 1/18),$
- mass electron string 1 and 2:  $1/25 m_{\text{electron}}.$

**Notes:**

- ) The two rotary photons of the proton result, through the rhombus shape, in a *total* of two proton strings, while the two rotary photons of the electron result in a *total* of two electron strings.
- ) Strings rotate relatively slowly. Only at the level of rotary photons does matter rotate around its axis at the speed of light  $c$ . At the higher levels of the strings, quarks and protons/electrons, particles do rotate around their axes but no longer at the speed of light.
- ) With the formation of these p.- and e.strings, charge and magnetic spin have increased threefold while mass has increased fivefold relative to p.rotary photons and e.rotary photons, respectively

### 6.2.5 QUANTITATIVE STRUCTURE OF QUARKS ( $n = 1$ ):

Like the structure of strings, quarks can be constructed from *two combinations* of five equivalent strings arranged in a rhombus shape:

- proton infrared quark nr. 1: four proton strings nr. 1 and one proton string nr. 2 or
- proton infrared quark nr. 2: one proton string nr. 1 and four proton strings nr. 2

See **figure 10 a/b**:

Through the rhombus shape, five electron strings nr. 1 and 2 in **figure 11 a/b** form both electron quarks nr. 1 and 2 as combinations of:

- electron visible-light quark nr. 1: four electron strings nr. 1 and one electron string nr. 2 or
- electron visible-light quark nr. 2: one electron string nr. 1 and four electron strings nr. 2

**a) The two basic quarks of the ordinary proton and anti-proton; ( $n = 1$ ):**

- the proton quark 1:  $(L p +1/3) (M p +1/6),$
- the anti-proton quark 2:  $(L p -1/3) (M p -1/6),$
- mass proton quark 1 and 2:  $1/5 m_{\text{proton}}.$

See **figure 10 a/b**.

**b) The two basic quarks of the ordinary electron and anti-electron; ( $n = 1$ ):**

- the electron quark 1:  $(L e -1/3) (M e +1/6),$
- the anti-electron quark 2:  $(L e +1/3) (M e -1/6),$
- mass electron quark 1 and 2:  $1/5 m_{\text{electron}}.$

See **figure 11 a/b**.

**Notes:**

- ) The two strings of the proton result, through the rhombus shape, in a *total* of two proton quarks, while the two strings of the electron result in a *total* of two electron quarks.
- ) With the formation of these p.- and e.quarks, charge and magnetic spin have increased threefold while mass has increased fivefold relative to p.strings and e.strings, respectively.

## 6.2.6 QUANTITATIVE STRUCTURE OF PROTON/ELECTRON AND ANTI-FORMS ( $n = 0$ ):

Finally, the proton/anti-proton can be constructed from *two combinations* of five equivalent proton quarks arranged in a rhombus shape:

-) the proton: four proton quarks nr. 1 and one proton quark nr. 2 See **figure 12**.

-) the anti-proton: one proton quark nr. 1 and four proton quarks nr. 2 See **figure 13**.

Both protons form the smallest variety of complete matter. At all underlying levels, both protons are each other's complete antimatter. Both protons are constituted of 5 quarks, 25 p.strings, 125 rotary photons/photons and 625 p.photinos.

The electron and the anti-electron can be constructed from *two combinations* of five equivalent electron quarks as combinations of:

-) the electron: four electron quarks nr. 1 and one electron quark nr. 2 See **figure 14**.

-) the anti-electron: one electron quark nr. 1 and four electron quarks nr. 2 See **figure 15**

Both electrons form the smallest variety of complete matter. At all underlying levels, both electrons are each other's complete antimatter. Both electrons are constituted of 5 quarks, 25 e.strings, 125 rotary photons/photons and 625 e.photinos/neutrino's/Higgs particles..

It is only through the rhombus shape that at all levels larger stable particles can be formed that exhibit either *charge*  $\leftrightarrow$  *mag bonds* or *mag*  $\leftrightarrow$  *charge bonds* at each corner of the rhombus.

No alternative spatial forms have been identified to date that allow larger constructs/particles to be made from combinations of ordinary matter and antimatter.

Also, the rhombus shape prohibits internal annihilation from occurring despite matter and antimatter being in such close proximity, by preventing these particles from making physical contact.

For the proton (**figure 12**) and the anti-proton (**figure 13**), the following combinations of charge and magnetic spin apply:

### a) The basic building blocks of ordinary atoms and black-hole atoms; ( $n = 0$ ) (figures 12 and 13):

- the ordinary proton 1:  $(L p + 1) (M p + 1/2)$ ,

- the ordinary electron 1:  $(L e - 1) (M e + 1/2)$ ,

- mass proton 1/anti-proton 2:  $= 1/1 m_{\text{proton}}$ .

Both protons constitute each other's complete antimatter.

### b) The basic building blocks of anti-atoms; ( $n = 0$ ) (figures 14 and 15):

- the anti-proton 2:  $(L p - 1) (M p - 1/2)$ ,

- the anti-electron 2:  $(L e + 1) (M e = 1/2)$ ,

- mass electron/anti-electron:  $= 1/1 m_{\text{electron}}$ .

Both electrons constitute each other's complete antimatter.

### Notes:

-) Through the rhombus shape, two varieties of proton quarks form a *total* of two protons: the proton 1 and the anti-proton 2, while two varieties of electron quarks form a *total* of two electrons: the electron 1 and the anti-electron 2.

-) The level of the proton/electron constitutes the last level at which matter is principally structured in rhombus-shaped constructs.

-)The neutron is the combination of one proton and one electron and as such is not a basic building block of matter.

-) With the formation of the proton/electron, charge and magnetic spin have increased threefold while mass has increased fivefold relative to p.quarks and e.quarks, respectively.

### 6.3 THE ELEMENTARY PARTICLES MODEL 2008:

**Schema 1: Elementary Particles Model 2008 according to Uiterwijk Winkel:** For  $n = 0, 1, 2, 3, 4$  etc.

Equation elementary particles of the (anti-)proton:  $(1/3 Lp)^n$ ;  $1/2 (1/3 Mp)^n$ ;  $(1/5 mp)^n$  (anti-)proton:

Equation elementary particles of the (anti-)electron:  $(1/3 Le)^n$ ;  $1/2(1/3 Me)^n$ ;  $(1/5 me)^n$  (anti-)electron:

**A1) Four photinos/neutrino's/Higgs particles; apparently "matter-less and mass-less" with  $(n = 4)$  and  $v > c$ ; form:**

Two proton p.photinos (C)/(AC) or in Dutch (LO)/RO):

p.photino	L +1/81	M +1/162	m 1/625 p
anti-p.photino	L -1/81	M -1/162	m 1/625 p

Two electron e.photinos (C)/(AC):

e.photino	L -1/81	M +1/162	m 1/625 e
anti-e.photino	L +1/81	M -1/162	m 1/625 e

**A2) Four photons; apparently "matter-less and mass-less" with  $(n = 3)$  and  $v = c$ ; form:**

Two p.photons:

p.photon	L +1/27	M +1/54	m 1/125 p
anti-p.photon	L -1/27	M -1/54	m 1/125 p

Two e.photons:

e.photon	L -1/27	M +1/54	m 1/125 e
anti-e.photon	L +1/27	M -1/54	m 1/125 e

**B1) Four rotary photons incomplete matter with  $(n = 3)$  and  $v < c$ ; form:**

Two p.rotary photons:

p.rotary photon	L+1/27	M +1/54	m 1/125 p
anti-p.rotary photon	L -1/27	M -1/54	m 1/125 p

Two e.rotary photons:

e.rotary photon	L -1/27	M +1/54	m 1/125 e
anti-e.rotary photon	L+1/27	M -1/54	m 1/125 e

**B2) Four strings incomplete matter with ( $n = 2$ ) and  $v < c$ ; form:**

Two p.strings:

p.string	L +1/9	M +1/18	m 1/25 p
anti-p.string	L -1/9	M -1/18	m 1/25 p

Two e.strings:

e.string	L -1/9	M +1/18	m 1/25 e
anti-e.string	L +1/9	M -1/18	m 1/25 e

**B3) Four quarks incomplete matter with ( $n = 1$ ) and  $v < c$ ; form:**

Two p.quarks:

p.quark	L +1/3	M +1/6	m 1/5 p
anti-p.quark	L -1/3	M -1/6	m 1/5 p

Two e.quarks:

e.quark	L -1/3	M +1/6	m 1/5 e
anti-e.quark	L +1/3	M -1/6	m 1/5 e

**C) Two protons and two electrons complete matter with ( $n = 1$ ) and  $v < c$ ; form:**

Two protons:

proton	L +1	M +1/2	m 1 p
anti-proton	L -1	M -1/2	m 1 p

Two electrons:

electron	L -1	M +1/2	m 1 e
anti-electron	L +1	M -1/2	m 1 e

**Notes on Schema 1; Uiterwijk Winkel's Elementary Particle Model 2008 :**

1) Starting at the level of photons, the rhombus-shaped constructs result exclusively in the (anti-)proton and the (anti-)electron. The (anti-)proton and (anti-)electron also mark the end of matter formation via the rhombus shape.

2) The proton and the electron can be considered the smallest varieties of complete and stable matter, both ordinary and black-hole. The anti-proton and the anti-electron are the smallest varieties of complete and stable antimatter. Starting at the proton and electron, the 4 : 1 or 1 : 4 proportion in the structure of matter and antimatter is no longer possible.

3) The coexistence of ordinary and anti-matter without annihilation is only possible via the rhombus shape. This coexistence is however completely counterintuitive.

4) According to the author, collisions in particle accelerators normally release around 40% of the colliding mass as particles of antimatter, causing 80% of the mass (40% + 40%) to annihilate. You yourself are made up of 40% antimatter!

5) All varieties of ordinary matter, black-hole matter and antimatter are derived from only two building blocks: the proton and electron on the one hand and the anti-proton and anti-electron on the other hand.

6) Because of their opposite rotation (C) or (AC), both photinos acquire a (small) opposite charge (L) and magnetic spin (M), causing both photinos to attract each other through these most elementary physical forces.

7) Using equivalent photinos (C) and (AC), principally antimatter, larger constructs can be formed, of which only two are stable. Stable constructs are only possible in the case of five equivalent photinos arranged in a rhombus shape. Such a construct is equivalent to a photon.

-) four photinos (C) + one photinos (AC) or

-) one photinos (C) + four photinos (AC)

This results in two stable constructs of five p.photinos towards the proton/anti-proton and two stable constructs of five e.photinos towards the electron/anti-electron. Both constructs are completely opposite matter/antimatter to each other but are unable to annihilate with each other.

8) The rhombus shape is repeated on all following levels of matter formation up to the level of the proton/electron and their anti-forms. At each level of matter formation, a maximum of four particles can be found; two towards the proton/anti-proton and two electron/anti-electron which are always completely opposite to each other and as such are each other's antimatter.

9) Rotationally, both p.rotary photons, p.strings, p.quarks and protons are at all levels complete and exact opposites. This also applies to both e.rotary photons, e.strings, e.quarks and electrons. At all levels these equivalent particles are completely each other's antimatter. Complete annihilation takes place from the level of rotary photons onwards.

10) The spatial structure at all levels of matter formation is explained further by **figures 1-15**.

11) Through the rhombus shape (and the fractal characteristics of the different levels) of matter, the most elementary physical characteristics of the smallest "matter-less" particles (photinos) can be deduced quantitatively:

-) charge (L) as a fractional part  $(1/3)^n$  and magnetic spin as fractional parts  $1/2 (1/3)^n$ .

-) mass as fractional part  $(1/5)^n$  of these values of the (anti-)proton/(anti-)electron.

Mass is expressed in concrete fractional parts of the mass of the proton/electron (not in  $\text{GeV}/c^2$ !) for all elementary particles.

12) In this document *four levels of rhombus shaped structure* are assumed for photinos, with  $n = 4$ . The value of  $n$  can be inferred from the number of clusters of photinos/loose photinos released on annihilation of one proton and one anti-proton and annihilation of one electron and one anti-electron.

13) The rhombus shape leads to fractal formation and this is at the basis of:

a) the spatial structure of matter,

b) the dual nature (+/-) in charge and magnetic spin,

c) the super-symmetry within the system of elementary particles,

d) the quantitative calculation of the fractional parts of charge (L), magnetic spin (M) and mass (m) of all particles, even particles (like photinos) that are principally undetectable.

14) The structure of matter with its different levels of matter formation is simple, clear and completely logical in structure. At each level this results in two particles which are completely each other's antimatter and are opposite in terms of charge (L) and magnetic spin (M); both qualitatively and quantitatively.

15) The rhombus-shaped structure also explains why every particle of ordinary matter combined with its equivalent anti-particle results in 100% annihilation and transformation of matter into photons and photinos/neutrino's/Higgs particles.

#### **6.4 THE LEVEL OF ATOMS OF ORDINARY MATTER, BLACK-HOLE MATTER:**

During the Little Bang, which occurs at a temperature of 0 degrees Kelvin, an equal number of ordinary protons and electrons is created which are aligned in alternating layers with a thickness of one particle. After that, the cycle of the universe completes itself in 30 steps and approximately 2.500 billion ( $2.5 \times 10^{12}$ ) years. Every cycle of the universe is completed in an entirely energy-neutral manner.

During the cycle of the universe (the Taeut cycle), the protons and electrons initially form an equal number of H-atoms, followed by the formation H<sub>2</sub> molecules.

During the H<sub>2</sub> supernovas, nuclear fusion brings about higher elements. Because of energetic limiting constraints, this always happens via the intermediate steps with 2 (K- and Q-shell) or 8 electrons, shaped like a tetrahedron with four electron pairs (L, M, N, O and P-shell).

During the supernova explosion this results in the universe-wide formation of atoms conforming to the Periodical System of Elements (starting at H), where all atoms and black-hole atoms in the universe are exclusively formed out of ordinary protons and electrons.

The Periodical System of black-hole elements starts at the black-hole element Beryllium (Be). Without exception, black-hole atoms are created when the electron shells of ordinary atoms collapse onto the atomic nucleus. This collapse can only occur when the shells contain a *minimum* of two electron pairs (occurs first with Beryllium), so that the electron pairs can form van der Waals bonds. This is why the collapse of electron shells can only occur from the element Beryllium (Be) onwards.

The processes concerning the formation of the Periodical System of Elements and the formation of black-hole atoms and black holes is extensively covered in the author's description of cycle of the universe and fall beyond the scope of this document. (The cycle of the universe/Taeut-cycle and the laws of the universe will be released during the 2011 on [www.uiterwijkwinkel.eu](http://www.uiterwijkwinkel.eu))

#### **6.5 THE LEVEL OF ATOMS OF ANTIMATTER:**

Only the anti-H<sub>2</sub> molecule can be formed with the anti-proton and the anti-electron. Higher anti-atoms cannot be created here on Earth and are not present anywhere in the universe.

The anti-H atom can only be created artificially from the anti-proton and the anti-electron. Anti-protons and anti-electrons are however not created during the Little Bang. Consequently, anti-H does not naturally occur in the universe.

## \*7) COMPARISON OF STANDARD MODEL 2008 ↔ ELEMENTARY PARTICLES MODEL 2008:

In this chapter, Uiterwijk Winkel's Elementary Particles Model 2008 (EPM 2008 – schema 1) is compared to Veltman/'t Hooft's Standard Model 2008 (SM 2008).

This comparison is done on the basis of *sixteen criteria* indicated in schema 2. Every criterion is handled separately, in effect making schema 2 an abstract of chapter 7.

### 7.1 COMPARISON BASED ON 16 CRITERIA:

#### Criterion 1: The number of building blocks of the atom:

- The **Elementary Particles Model 2008 (EPM 2008)** results in *only four elementary building blocks* of matter which are always found in pairs of two:
  - 1/2) the ordinary proton and electron as the only basic building blocks of: a) all ordinary atoms (starting from H) and b) all black hole atoms (starting from Be); and
  - 3/4) the anti-proton and anti-electron as the only basic building blocks of: the anti-H atom and the anti-H<sub>2</sub> molecule.
- The elementary forces acting on these basic building blocks are:
  - 1/2) elementary charge-force (+Lek +1)/(+Lek -1) of the proton/electron and their anti-forms
  - 3/4) elementary magnetic spin-force (+Mesk +1/2)/(+Mesk -1/2) of the proton/electron and their anti-forms.
- The EPM 2008 does not contain the neutron as building block of an atomic nucleus. The neutron is made up of one proton and one electron. As a loose particle, the neutron is unstable.
- Uiterwijk Winkel posits that the atomic nucleus consists of only protons and electrons which attract each other through charge and at the same time repulse each other through magnetic spin. This implies protons and electrons interact only electrically and magnetically. See also document C1: Bohr's atomic model simplified.
- Uiterwijk Winkel's simplified atomic model results in a system of just five *autonomous* forces acting on the atom:
  - 1/2) *elementary charge-force* (+Lek +1)/(+Lek -1),
  - 3/4) *elementary magnetic spin-force* (+Mesk +1/2)/(+Mesk -1/2) and
  - 5) an non-measurable *basal centrifugal force* (+Ck e) of the electron which keeps this "shell" electron in an orbit around the atomic nucleus. S
- Gravitation is not an *elementary of massa*, nor is it *autonomous* force acting on the proton, the electron or the atom.
- The **Standard Model (SM 2008)** results in *six elementary building blocks of matter*:
  - 1/2) the ordinary proton and the electron,
  - 3/4) the anti-proton and the anti-electron,
  - 5/6) the neutron and the anti-neutron.
- For reasons that are unclear to the author, electrons cannot occur inside the atomic nucleus. After all, Heisenberg's uncertainty principle only applies to *measurements!* This results in neutral "neutrons" in the atomic nucleus surrounded by positively charged, reciprocally repulsing protons. This neutron is regarded as an independent particle and basic part of the atomic nucleus from deuterium onwards, despite the fact that the neutron is unstable when unassociated.

- The presence of neutral “neutrons” besides positively charged protons necessitates the position of particles tasked with keeping proton and neutron together in the atomic nucleus (such as the gluon, the vector bosons etc.).
- Bohr’s atomic model with *protons and neutrons in the atomic nucleus* results in a system of four fundamental forces in science: strong nuclear force (the gluon); weak nuclear force; electromagnetic force and gravitation. This system is fundamentally different from the much simpler system of protons and electron and their elementary forces described above by the author.
- 

**Criterion 2: The number of underlying levels in these building blocks of the atom:**

Both models distinguish underlying levels:

The **EPM 2008** distinguishes five underlying levels of elementary particles: quarks, strings, rotary photons, photons and lastly photinos which are equivalent to neutrinos.

The transition between matter ↔ matter-less has been indicated and elaborated upon.

The **SM 2008** distinguishes only three underlying levels: quarks, strings and the photon. The transition between matter ↔ matter-less has not been made explicit.

**Criterion 3: The number of mass levels:**

- The **EPM 2008** distinguishes only one level that is comparable to the level up/down. The SM 2008 *does not* distinguish elementary particles like quarks at the mass levels of: a) charm/strange and b) top/bottom. The author posits that these mass levels are a result of: a) formation of larger particle constructs after collisions in particle accelerators and/or b) the incorrect or unjustified application of  $E = mc^2$  in calculating particle mass.
- The EPM also does not result in heavy or super-heavy protons/electrons equivalent to the level of charm/strange and top/bottom. These heavy or super-heavy protons, electrons or heavy/super-heavy H-atoms have until now not been found on Earth, nor have H-atoms that are based on those.
- The **SM 2008** distinguishes three subsequent mass levels: 1) up/down, 2) charm/strange and 3) top/bottom which are, according to the author either the result of the formation of larger particle constructs after collisions in particle accelerators and/or the incorrect or unjustified application of  $E = mc^2$  in calculating particle mass.  
Present research in particle accelerators does not account for the creation of such larger constructs nor does it account for annihilation of matter and antimatter particles, releasing substantial amounts of energy.
- When calculating mass using  $\text{GeV}/c^2$ , energy released in particle accelerators due to annihilation, together with the ‘mass’ generated through  $E = mc^2$  from linear and rotational velocity of these particles is also measured.
- In practice, the mass levels of charm/strange and top/bottom have not been demonstrated in the form of a heavy proton, electron or H-atom. The levels of charm/strange and top/bottom have therefore not been proven and can be deemed unrealistic.

#### Criterion 4: The number of elementary particles:

In the **EPM 2008** and schema 1, Uiterwijk Winkel distinguishes a total of twenty-four particles of matter, of which:

- \* a1) two *particles complete ordinary matter*: the proton and the electron,
- a2) two *particles complete antimatter*: the anti-proton and the anti-electron.

and

\* *twenty elementary particles incomplete matter*:

- b1) ten elementary particles structuring towards the proton/anti-proton and
- b2) then elementary particles structuring towards the electron/anti-electron

Those twenty are distributed in pairs of two among the five consecutive levels of matter formation (quarks, strings, rotary photons, photons and photinos).

- The two elementary particles structuring towards the proton/anti-proton possess always an equal but opposite charge (L) and magnetic spin (M). Both particles structuring towards the proton/anti-proton are therefore each other's antimatter. This also applies to the two particles structuring towards the electron/anti-electron.
- Veltman/'t Hooft's **SM 2008** distinguishes a total of 61 elementary particles of matter/antimatter (62 if we count the Higgs particle) which are distributed over three mass levels which in effect don't reach beyond the level of quarks/leptons. Here are distinguished:

#### I) 3 x 8 elementary particles ordinary matter:

- 3 up quarks +2/3 in colors red, green and blue, \*)
- 3 down quarks -1/3 in color red, green and blue, \*)
- 1 lepton 1, \*)
- 1 lepton 2 (the electron), \*)
- \*) in varieties up/down, charm/strange and top/bottom.

#### II) 3 x 8 elementary particles antimatter:

- 3 up quarks -2/3 in colors red, green and blue, \*)
- 3 down quarks +1/3 in color red, green and blue, \*)
- 1 anti-lepton 1, \*)
- 1 anti-lepton 2 (the electron), \*)
- \*) in varieties up/down, charm/strange and top/bottom.

#### III) 3 bosons, 1 photon and 9 gluons as well as the Higgs particles as p.m.:

#### Criterion 5: Structure of the elementary particles:

- Within the **EPM 2008**, all constructs of elementary particles matter are shaped like a rhombus of five particles ordinary matter and antimatter found in just *two, fixed proportions* of 1 : 4 or 4 : 1.
- At all levels of matter formation, elementary particles of matter consist of:
  - \* four identical particles ordinary matter + one similar particle antimatter; arranged in a rhombus; or
  - \* four identical particles antimatter + one similar particle matter arranged in a rhombus.See also figures 1 – 15.
- Both matter and antimatter consist, at all levels of matter formation, of stable 4 : 1 or 1 : 4 constructs of each other. All bonds in elementary particles are formed by either an attraction through charge and a repulsion through magnetic spin (= *a charge ↔ mag-bond*) or an attraction through magnetic spin and a repulsion through charge (= *a mag ↔ charge-bond*). Each bond is therefore a *physical balance-bond!*

- The EPM 2008 is essentially based on a structure of four rhombus-shapes, repeating themselves starting with the matter-less photinos. The subsequent rhombus-shapes go through the photon, rotary photon, string and quarks levels to ultimately reach the (anti-)proton and the (anti-)electron.
- Within the **SM 2008**, the proton and the neutron consist of quarks of ordinary matter and the anti-proton and anti-neutron consist of just anti-quarks. Varieties are never mixed and constructs containing ordinary quarks and anti-quarks as elaborated on in the EPM 2008 are unthinkable within the SM 2008.
- Ordinary protons and neutrons are constructs of three ordinary quarks that are kept together through *charge* and *color force* (chromodynamics). Further study and quantitative determination with regards to magnetic spin (M) is lacking for these quarks.
- The anti-proton/anti-neutron are constructs of three quarks of antimatter, also lacking information on magnetic spin. An attempt to compensate for the absence of magnetic spin is made through the colors red, green and blue or anti-colors red, green and blue. The system behind these colors is unclear, however.
- It remains unclear why the proton is stable while the neutron is not. When a neutron decays into a proton and an electron, the question of where the electron came from is left unanswered.

#### **Criterion 6: The color codes:**

- Within the **EPM 2008**, the three most elementary physical characteristics of all particles are completely defined and their quantitative values deduced. For all particles the mass (m), charge (L) and magnetic spin (M) are determined as fractional parts of those of the proton/electron and anti-proton/anti-electron. This makes the color codes completely superfluous within the EPM 2008. The coloring in the figures is done solely to distinguish between elementary particles of the (anti-)proton and of the (anti-)electron.
- The **SM 2008** lacks the rhombus-shaped structure of matter and recognizes only three particles. As a consequence, the structure of these three quarks results in charge fractions of  $+2/3$  and  $-2/3$  making further determination of magnetic spin of these quarks impossible.
- An attempt to compensate for the absence of magnetic spin in the SM 2008 is made through the color coding red, green and blue (or anti-colors red, green and blue). The system behind these colors is somewhat appealing but its foundation remains unclear.

#### **Criterion 7: QCD; Quantum Chromodynamics:**

- The **SM 2008** uses the system of quantum chromodynamics.
- The **EPM 2008** has no color codes and therefore does not use quantum chromodynamics (QCD). Color force is completely superfluous.

#### **Criterion 8: Spatial structure of elementary particles:**

- For all levels of matter formation within the **EPM 2008**, the spatial structures of all particles are shown in figures 1 – 15. All elementary particles in those figures are interconnected through either a physical

*charge* ↔ *mag-bond* or a physical *mag* ↔ *charge-bond*. The structure of these particles, forces and bonds has been made clear and understandable down to the very lowest level.

- The **SM 2008** lacks a clear spatial structure of the quark particles within the nuclear particle, because the lack of quantitative determination of magnetic spin. Color coding with red, blue and green does not address this problem at all.
- It is unclear what causes the larger mass of heavy and super-heavy quarks and which *matter-possessing* particles actually make up these heavy and super-heavy constructs.

#### **Criterion 9: Physical and chemical properties:**

- All particles within the **EPM 2008** possess a fractional part of the mass (m), charge (L) and magnetic spin (M) of the proton or electron. All elementary particles possess only these three physical properties.
- Gravitation is not yet present. Gravitation acts only on the level of *atoms* and only when they experience movement through the universe. Gravitation is generated exclusively by “shell” electrons and not by the mass of the atomic nucleus. See document E3 on the essence of gravity on [www.uiterwijkwinkel.eu](http://www.uiterwijkwinkel.eu).
- Because of the lack of a clear spatial structure, the values for mass (m), charge (L) and magnetic spin (M) cannot be easily deduced. These must be calculated from observations and measurements.
- The mass of particles is currently determined using  $E = mc^2$  which is incorrect. Charge and magnetic spin can be deduced partly from the trajectories of particles in the “Wilson”-chamber of measuring equipment. The interpretation of quantitative determinations of mass, charge and magnetic spin remains an area of difficulty.
- Gravitation is considered an elementary force of matter in the form of the graviton.

#### **Criterion 10: Mass-less particles:**

- Within the **EPM 2008**, the mass of all particles is deduced, through the rhombus shape, as an exact fractional part of the mass of the proton/electron. *The EPM 2008 does not contain particles lacking mass, charge and spin.* Even photinos possess mass, charge and magnetic spin.
- All varieties of energy are therefore inevitably linked to mass, matter and massive photons. Mass-less energy as described by Einstein with  $E = mc^2$  does not exist. Mass is the most **elementary property** of matter. *Mass* cannot be transformed into *energy*. (Uiterwijk Winkel’s principle of the immutability of mass, charge and magnetic spin). This relates closely to the laws of conservation of mass, charge and momentum.
- The **SM 2008** does not at present attribute photons and photinos with mass. The Standard Model 2008 therefore recognizes non-massive forms of energy. Mass can here be transformed into energy.

### Criterion 11: Quantitative determination of physical properties:

- Within the **EPM 2008**, all 24 particles are named and provided with their *quantitatively deduced values* for mass, charge and spin expressed as *fractional parts* of the proton or electron or their anti-forms. See also schema 1.
- The transition between matter-less (photinos/photons) and matter (rotary photons) is indicated.
- The **SM 2008** largely provides the quantitative values for charge, but lacks a quantitative determination of magnetic spin and mass expressed in fractional parts of the proton/electron. Mass is expressed in  $\text{GeV}/c^2$ , a result of the incorrect application of  $E = mc^2$ .
- The transition between matter-less (photinos/photons) and matter is completely lacking.

### Criterion 12: Quarks:

- Because of the rhombus shape, the **EPM 2008** results only in charge fractions of  $+1/3$  and  $-1/3$ . Charge fractions of  $+2/3$  or  $-2/3$  are not possible.
- The charge fractions of  $+1/3$  and  $-1/3$  found within the EPM 2008 are a result of the rhombus shape consisting of matter and antimatter particles in proportions  $1 : 4$  or  $4 : 1$ . This results in a very stable proton and a very stable anti-proton. This also applies to the structure of the electron and the anti-electron/positron.
- Because of the three quarks, both a logical structure of matter and a clear structure and quantitative determination of charge, spin and mass is lacking in the **Standard Model 2008**.
- The SM 2008 distinguishes quarks with charge fractions of  $+1/3$  or  $-1/3$  as well as those with charge fractions of  $+2/3$  or  $-2/3$ . The SM 2008 does not explain the origin of these fractional parts of the proton charge.
- In terms of forces, no stable proton can be constructed using three quarks, in which these quarks are themselves still able to rotate freely as *charge*  $\leftrightarrow$  *mag-bond* or as *mag*  $\leftrightarrow$  *charge-bond*. This also applies to the current three quarks and to the neutron.

### Criterion 13: Gluon, graviton, vector bosons and the Higgs particle:

- The **EPM 2008** distinguishes:
  - \* no gluon; the elementary charge-force is sufficient;
  - \* no graviton; gravitation is generated by “shell” electrons of the atom and not by the mass of the atomic nucleus;
  - \* no vector bosons; there is no weak nuclear force;
  - \* the Higgs particle is equal to the photino/neutrino the smallest mass particles with standard load and magnetic spin.
- Based on experiments in particle accelerators, the **SM 2008** does result in the gluon, the graviton (not proven), vector bosons and the Higgs particle/neutrino. These are necessary to complete the Standard Model 2008.  
These particles are in reality the result of the incorrect application of Einstein’s  $E = mc^2$  and the disregard for the process of annihilation described in this article, which causes 80% of the released

particles to disappear before detection takes place. The energy released on annihilation is (incorrectly) attributed to mass ( $m$ ).

#### **Criterion 14: symmetry and dualism:**

- At all levels, the **EPM 2008** is based on two particles because of the 4 : 1 or 1 : 4 proportions of matter : antimatter. These proportions invariably result in exactly two particles structuring towards the proton/anti-proton and exactly two particles structuring towards the electron/anti-electron.
- At all distinguished levels, both these particles are *strictly symmetrical* in structure, both spatially and rotationally. Therefore they are always each other's antimatter. The EPM 2008 clarifies the cause of this symmetry completely.
- As a result of the rhombus shape, equivalent particles possess an equal but opposite charge and an equal but opposite magnetic spin at all levels. This is why all elementary particles are strictly dualistic (+/- sign) relative to each other in terms of both charge and magnetic spin.
- All the forces of the atom, deduced by the author in documents C2, C3 and C4, are therefore also dualistic in nature (+/-).
- The **SM 2008** shows symmetry between the levels up/down, charm/strange and top/bottom but within levels, symmetry is largely or altogether lacking. The proposed (super-)symmetry can therefore not be explained.

#### **Criterion 15: annihilation inside particle accelerators?:**

- Within the **EPM 2008**, ordinary matter consists of around 60% elementary particles ordinary matter and 40% elementary particles antimatter due to the rhombus-shaped structure.
- During collision tests in particle accelerators using ordinary matter e.g. protons, 40% of the total mass is released as antimatter particles which will immediately annihilate with 40% of their equivalent ordinary matter. This causes 2 x 40% to disappear through annihilation and be released as photons. Only approximately 20% of the original mass is left, all of it ordinary matter.
- Those antimatter particles making up 40% of the proton are completely missed in analysis. The energy released during annihilation however, is measured.
- The **SM 2008** denies the possibility of particles of ordinary matter and antimatter coexisting within matter constructs.
- Therefore, collision experiments cannot result in annihilation and antimatter cannot be found! The annihilation energy is attributed to the mass of other measured particles using  $E = mc^2$ . This leads to errors in calculation.

**Criterion 16: is  $E = mc^2$  allowed for  $m = \text{mass}$ ?:**

- Within the **EPM 2008**, the mass of all elementary particles can be deduced at all levels from its spatial structure. The mass of elementary particles is determined in this way, not using  $E = mc^2$  for  $m = \text{mass}$ .  $E = mc^2$  is only allowed in case of annihilation and for  $m = \text{matter}$ . For the difference between mass and matter see document G0 [www.uiterwijkwinkel.eu](http://www.uiterwijkwinkel.eu)
- Within the **SM 2008**, the mass of an elementary particle is *not expressed* as a fractional part of the mass of a proton or electron. The mass of elementary particles is solely determined by applying  $E = mc^2$  and expressed in  $\text{GeV}/c^2$ .
- It has already been indicated and deduced in this document that  $E = mc^2$  only applies to the internal rotation velocity of rotary photons:  $E = mc_r^2$ .  $E = mc^2$  does not apply to linear velocity  $c_1$  and/or rotational velocities as they are present inside particle accelerators. In fact, there applies  $E \neq mc^2$  for  $m = \text{mass}$ ! The equation  $E = mc^2$  is currently incorrectly applies to determine mass.
- In current practice, the energy released as a result of annihilation is attributed, through  $E = mc^2$ , to the “mass” of other released particles.

**Can the current Standard Model 2008 be kept?:**

- The elementary particles described in the **EPM 2008** are completely logical in structure. The EPM 2008 is consistent considered both top/down as bottom/up. The EPM 2008 can therefore be considered valid as a theory but need experimental confirmation.
- The **SM 2008** contains various particles that have been calculated by theoretists but have no place within the system and logic of the EPM 2008. This applies to the Higgs boson and all so-called “force-carrying” particles (gluons, the graviton, vector bosons).
- The SM 2008 distinguishes both a *strong* and a *weak nuclear force* although these forces are not connected to charge or magnetic spin. Schema 2 lists the sixteen criteria.

**Schema 2: Comparison of the Standard Model 2008 ↔ Elementary Particles Model 2008**

	<b>SM 2008</b>	<b>EPM 2008</b>
<b>1a) Building blocks of the atom:</b>	- proton - electron - neutron	- proton - electron - ---
<b>1b) Building blocks of the anti-atom:</b>	- anti-proton - anti-electron - anti-neutron	- anti-proton - anti-electron - ---
<b>2) Number of underlying levels of building blocks</b>	three: quarks, strings photon	five: quarks, strings, rotary photons, photons and photinos

<b>3) Levels:</b>	three: up/down, charm/ strange, top/bottom	one: only up/down
<b>4) Number of particles:</b>	61 24 particles ordinary matter 24 particles antimatter - separate "force-carriers" - 3 bosons, 9 gluons and the graviton; the photon	20; 10 towards the proton/anti-proton and 10 towards the electron/anti-electron - no separate "force-carriers"
<b>5) Structure:</b>	The proton/neutron are made from just similar quarks up/ down in colors red, green and blue	All particles are structured as constructs of ordinary and anti-particles in proportions 1 : 4 or 4 : 1; no color codes.
<b>6) Color codes:</b>	Red, green and blue	No colors
<b>7) QCD, Quantum Chromodynamics:</b>	Yes	No; QCD is superfluous.
<b>8) Spatial structure:</b>	Unspecified	At all levels, the spatial structure for all particles is described.
<b>9) Physical characteristics:</b>	Mass (in GeV/c <sup>2</sup> ), charge, spin and graviton	mass, charge and magnetic spin as fractional parts of the (anti-)proton/(anti-)electron; <b>no</b> graviton!
<b>10) Non-massive particles:</b>	Yes, the photino and the photon among others	No; all particles possess mass
<b>11) Proportions charge Proportions spin Proportions mass</b>	partly rational partly rational non-rational	completely rational completely rational rational
<b>12) Quarks charge:</b>	+2/3, -2/3, +1/3 and -1/3	just +1/3 and -1/3
<b>13) Other particles:</b>	gluon, graviton, vector bosons, Higgs particle	Only Higgs particle/neutrino/ photino
<b>14) Symmetry:</b>	Partly, not completely	Completely, all particles have an anti-particle
<b>Dualistic:</b>	Partly +/- charged particles and partly uncharged particles	all particles +/- charged and +/- spin; no uncharged particles
<b>15) Annihilation in particle accelerators</b>	No	Yes; 80% (2 x 40%) of released particles annihilate
<b>16) <math>E = mc^2</math> used for determining mass</b>	Yes	No; is made impossible by annihilation
<b>Standard Model:</b>	SM 2008 is no longer tenable	EPM 2008 is tenable

## 7.2 RESULTS OF COMPARISON OF MODELS:

1. The author argues that the following particles be removed from the Standard Model 2008:
  - a. The quarks at the level of *charm/strange* and *top/bottom*,
  - b. The *leptons* with charge (L) = 0 at the levels of *charm/strange* and *top/bottom*,
  - c. The quarks with charge (L) = +2/3 and charge -2/3, leaving quarks with charge +1/3 and -1/3,
  - d. *Color coding*, red, blue and green as well as anti-colors.
  - e. The *gluon* as representation of the “strong” nuclear force,
  - f. The *graviton* as the force carrier for gravitation/gravity in the atomic nucleus,
  - g. The *W and W<sup>+</sup> vector bosons* as well as the *Z<sup>0</sup> vector boson*,
  - h. The Higgs particle is then no longer needed.

This leaves little of the Standard Model 2008 intact.

2. Uiterwijk Winkel presents a complete revision in the form of the Elementary Particles Model 2008, explaining the structure of “matter-less” ↔ matter and the structures at all levels of matter formation. Within the EPM 2008, the formation of matter occurs along four levels ( $n = 4$ ) characterized by the rhombus shape. The exact number of levels may be different but this does not reflect on the integrity of the system.
3. The number of levels ( $n$ ) follows the number of *photons* released on annihilation. From this number, the number of levels between photinos and the (anti-)proton/(anti-)electron can be deduced.
4. The rhombus shape explains both the super-symmetry in the structure of (anti-)matter and the duality seen in charge and magnetic spin. This duality continues in all other physical and chemical forces of the atom.
5. The rhombus structure makes the Elementary Particles Model 2008 clear by allowing the spatial structures of all elementary particles to be deduced; contrary to the Standard Model 2008.
6. The rhombus structure has allowed the author to systematically deduce *quantitative values* for elementary charge, magnetic spin and mass for all elementary particles, expressed as fractional parts of those of the (anti-)proton and (anti-)electron.
7. The mass of all particles can be deduced at all levels of matter formation. It can be expressed as a fractional part of the mass of a proton and an electron without the application of the equation  $E = mc^2$ .

## 7.3 CONSEQUENCES OF COMPARISON:

Comparing the **EPM 2008** and the **SM 2008**, the conclusion is that the SM 2008 is invalid on all points. The current **SM 2008** should therefore be replaced by the **EPM 2008** as soon as possible.

## \*8) DISCUSSION:

### 1) *Interaction between matter-less and matter:*

The Elementary Particles Model 2008 starts with photinos which can rotate freely around their long and short axes in four different ways. They move at speeds greater than the speed of light. Because of their free rotation, these photinos cannot interact with ordinary, black-hole or antimatter in any way. The physical characteristics can therefore not be ascertained: 'Uiterwijk Winkel's technical indeterminability of photinos'.

2) All other elementary particles such as photons, rotary photons, strings, quarks are constructs of photinos which *can only rotate around their long axes*. This is why measuring equipment can only detect elementary particles starting at the photon. Measuring equipment cannot detect smaller/the smallest particles of matter, described by the author as photinos, directly. Photinos are equal to the neutrino and the Higgs particle.

### 3) *Matter and antimatter are 4 : 1 or 1 : 4 stable combinations of each other:*

At all levels, the Elementary Particles Model 2008 is based on constructs shaped like a rhombus. At each corner of this rhombus, a *charge ↔ mag bond* can be found, which is characterized by:

\* an reciprocal attraction through charge combined with a reciprocal repulsion through magnetic spin or vice versa:

\* a *mag ↔ charge bond* characterized by a magnetic attraction combined with a charge repulsion.

4) Such rhombus shapes with only *charge ↔ mag bonds* or *mag ↔ charge bonds* can be found at all levels of matter formation: photons, rotary photons, strings, quarks and eventually the (anti-)proton and the (anti-)electron.

5) These 4 : 1 and 1 : 4 constructs of elementary particles ordinary matter combined with an elementary particle antimatter lead to *very stable constructs* of both ordinary matter and antimatter. The repeating rhombus shape reveals that all ordinary matter consists of approximately 40% antimatter and 60% ordinary matter. Antimatter consists of approximately 40% ordinary matter and 60% antimatter.

### 6) *80% of regular matter can be "internally" transformed into photons, not 100%:*

Theoretically, based on the 4 : 1 or 1 : 4 proportions, both matter and antimatter can annihilate "internally" for a maximum of 80% ( $2 \times 49/125 \times 100\% = \text{approx. } 80\%$ ). 100% annihilation, as Relativity theory predicts, is not possible!

Ordinary matter cannot *possibly* be transformed into energy through  $E = mc^2$ . Technically there is no pure energy involved but a transition of matter from rotary photons → photons. The author posits that mass is not transformed into energy!

7) During *nuclear fusion reactions*, apart from actual partial nuclear fusion and the formation of He, approximately 80% internal annihilation of the protons and electrons of the hydrogen atom and its isotopes can take place.

During *nuclear fission reactions*, the energy released is a result of the fission of larger atoms. Because of the high temperature, "internal" annihilation could also take place during nuclear fission!

8) The author posits that Einstein's Relativity Theory and  $E = mc^2$  are no longer applicable. Relativity Theory is shown to be a bane to science as much theoretical and experimental research will need repeating and many publications and dissertations will need revision and rewriting.

### 9) *Released antimatter is not measured at the LHC;*

Particle accelerators such as the Large Hadron Collider (LHC, Geneva) collide protons at speeds approximating the speed of light. During these collisions, 40% of the mass is released as antimatter which annihilates with ordinary matter particles making up another 40%, transforming them into photons and photinos. The 40% antimatter particles are very hard or impossible to detect, making it easy to miss them.

The energy released will be wrongly attributed to the mass of remaining particles using the equation  $E = mc^2$ . This results in errors in determinations of mass of elementary particles at the LHC.

10) *The equation  $E = mc^2$  is only applicable to “internal” rotational velocity  $c_r$ , and not to linear velocity  $c$ :* According to the (currently considered valid) equation  $E = mc^2$ , the matter of a proton/electron linearly accelerated to the speed of light  $c$  should convert *completely* to energy. However, the proton moving at the speed of light in the LHC stays intact as a particle!

The equation  $E = mc^2$  therefore does not apply to linear velocities or rotations in particle accelerators and cannot be applied to calculate the mass of elementary particles!

11)  *$E = mc^2$  is incorrectly applied for mass determination:*

It is common practice in science today to determine the mass of a particle by measuring its kinetic energy and then calculating mass using  $E = mc^2$ .

Calculating the mass of a particle is only possible when all movements and all kinetic energies of a particle are known. From a technical standpoint, these velocities and kinetic energies cannot possibly be quantified separately. Determining the exact mass is therefore fundamentally impossible.

12) *The equation  $E = mc^2$  only applies in case of annihilation:*

A total 100% conversion of matter to energy/photons is only possible on annihilation of a relatively “stationary” particle with another relatively “stationary” equivalent anti-particle. During annihilation in this manner, both particles attract each other through opposite charge ( $L$ ) and magnetic spin ( $M$ ).

This complete reciprocal attraction results in full physical contact between particles. On this event, all rotary photons of both particles are stripped of their rotation with the speed of light  $c_r$ . As a result of this, all clusters of five photinos/photons and perhaps loose photinos are released which move linearly at the speed of light  $c_l$  in the case of photons or faster in the case of photinos. No mass ( $m$ ) is converted to energy ( $E$ ). Mass is the most elementary property of matter and can therefore not be converted to energy.

13) *Formation of matter from photons:*

Science on Earth has not at present not been successful in creating elementary particles of matter (strings, quarks, protons/electrons) *from pure energy  $E$*  (which does not actually exist) or even from infrared photons and/or visible light photons. The author posits that matter should come into being when photons can be made to rotate *around their own axes* with the speed of light.

This matter formation process takes place on a large scale around the central black hole of each galaxy, where photons and photinos can acquire such a rotational velocity over possibly billions of years.

The author posits that, around black holes, the formation of protons takes place from infrared photons/photinos and the formation of electrons takes place from light photons/photinos. This formation process can possibly occupy millions to billions of years and can be observed visually on the rotational axes of black holes. Because photinos and photons are continually being transformed back into protons and electrons, the universe is dark and very cold (2,7 degrees Kelvin).

14) *Other particles are superfluous solutions:*

The EPM 2008 (schema 1) describes the system of elementary particles in detail. This schema forms an important tool for use with particle accelerators in separating true elementary (stable) particles and fragments or formations of larger (unstable) constructs after collision.

Experiments with the LHC with colliding protons will *not* result in charm, strange, top and down quarks; quarks charged  $+2/3$  and  $-2/3$ ; the gluon, graviton, vector bosons. The Higgs particle is equal to the neutrino/photino.

15) *EPM 2008 offers certainty:*

Schema 1 of the Elementary Particles Model offers theoreticists every possibility to convert elementary particles into mathematic expressions.

Within particle research, schema 1 offers all possibilities to link measurements to elementary particles of which the spatial structure, mass ( $m$ ), charge ( $L$ ) and magnetic spin ( $M$ ) are determined.

## \*9) CONCLUSIONS:

1. The Standard Model 2008 should be replaced by Uiterwijk Winkel's Elementary Particles Model 2008 as soon as possible.
2. The Elementary Particles Model 2008 (EPM 2008) distinguishes a total of 24 particles of matter of which 20 are elementary particles incomplete matter and 4 are particles of complete matter: the (anti-)electron and the (anti-)proton. Fifteen figures explicate the spatial structure of all particles.
3. Schema 1 lists all 24 particles with quantitative values for each particle's *three elementary* physical properties: mass, charge and spin. These properties are quantified as fractional parts of the (anti-)proton or the (anti-)electron.
4. Mass is the most elementary property of all forms of matter. Mass is a completely changeless and fixed property that can neither be destroyed, changed, or transformed into energy. (This fact alone is the demise of Relativity Theory)
5. Charge and magnetic spin both come into being when the photinos mass rotates around its axis. Charge and spin are the only elementary physical forces which are physically speaking completely equivalent.
6. Gravitation is only produced when an atom moves through the universe. It is generated by its "shell" electrons and not by the mass of the atomic nucleus. The loose proton and electron possess mass, charge and magnetic spin but generate no gravitation (see document E3). Gravitation has no mass, load and magnetic spin an kinetic energy and moves with an infinity speed through the universe.
7. The EPM 2008 starts with the apparently "matter- and mass-less" photinos of the proton and the electron which rotate left (C) or right (AC). Both varieties therefore have opposite values of elementary charge (L+/-) and magnetic spin (M+/-).
8. Both infrared photinos (C) and (AC) are essentially each other's non-annihilating antimatter. This also applies to both light photinos (C) and (AC) of the electron.
9. The process of matter formation occurs at all levels through the rhombus shape and leads exclusively in the formation of the (anti-)proton and the (anti-)electron. No neutron can be formed. The neutron does not constitute an elementary particle of the atom.
10. The EPM 2008 describes the process of formation of complete matter with six levels. Four out of five transitions occur through a rhombus-shaped construct of five smaller particles forming one larger particle. These six levels are:
  - 1) the very smallest particles of matter are the photinos/neutrino's/Higgs particles which move through the universe with speeds exceeding the speed of light ( $v_{max} > c$ ),
  - 2) rhombus shaped constructs of five photinos make up the light photon and the infrared photon, moving through the universe at the speed of light ( $v_{max} = c$ ). At  $v > c$  these photons disintegrate into photinos.
  - 3) Rotary photons are photons rotating with the speed of light, exhibiting mass and matter as a result. A rotary photon's velocity is limited by the speed of light ( $v_{max} < c$ ),
  - 4) Strings; rhombus shaped constructs of five similar rotary photons with  $v_{max} < c$ ,
  - 5) Quarks; rhombus shaped constructs of five similar strings with  $v_{max} < c$ ,
  - 6) The (anti-)proton and (anti-)electrons; rhombus shaped constructs of five similar quarks with  $v_{max} < c$
11. At the four higher levels of matter, all elementary particles of ordinary matter and antimatter are arranged in a rhombus shape in proportions of 1 : 4 or 4 : 1. At all corners of the rhombus an attraction

via charge is combined with a repulsion through magnetic spin, or vice versa, resulting in either a *charge ↔ mag bond* or a *mag ↔ charge bond*.

12. This rhombus shape with exclusively *charge ↔ mag bonds* and *mag ↔ charge bonds* results in completely stable constructs of matter and antimatter together. No annihilation can occur within these elementary particle constructs.  
Within the EPM 2008, a rhombus of *matter/antimatter* can be found at all levels of matter formation due to the 1 : 4 or 4 : 1 proportionality.
13. All ordinary and black-hole matter (protons and electrons) consists for 49 parts out of 125 (approximately 40%) out of elementary *particles antimatter* and for 76 parts (60%) out of elementary *particles ordinary matter*.  
All antimatter (anti-protons and anti-electrons) consists for 49 parts out of 125 (approximately 40%) out of elementary *particles ordinary matter* and for 76 parts (60%) out of elementary *particles antimatter*.  
All varieties of *matter* can be transformed into energy (photons) for approximately 80% and not for 100% as proposed by Relatively Theory.
14. On annihilation, 100% of the involved matter and antimatter are converted into photons. No *mass* is lost in this process. The conversion of *mass* into 100% pure energy is impossible. Relativity Theory and  $E = mc^2$  are based on erroneous principles and result in tragic mistakes at the very foundation of theoretical physics and astrophysics.
15. Because of the rhombus shape, each level produces two particles that will lead to the structure of the (anti-)proton and two particles that will lead to the structure of the (anti-)electron.  
Both particles structuring towards the proton and the electron are always each other's antimatter. At each level of matter formation, exactly four stable elementary particles can be distinguished.
16. Through the rhombus shape, Uiterwijk Winkel has deduced the structure of all elementary particles qualitatively, quantitatively and spatially.  
For all levels with a rhombus shaped construct, the physical properties of these 20 elementary particles are expressed as fractional parts of the values of the proton/electron and the anti-proton/anti-electron.  
\*) charge particle: charge proton = rational numbers  $(1/3)^n$ ,  
\*) spin particle: spin proton = rational numbers  $1/2 \cdot (1/3)^n$ ,  
\*) mass proton-related particle: mass proton = rational numbers  $(1/5)^n$ ,  
\*) mass electron-related particle: mass electron = rational numbers  $(1/5)^n$ .  
  
 $n = 0$  : the level of the (anti-)proton and (anti-)electron,  
 $n = 1$  : the level of quarks,  
 $n = 2$  : the level of strings,  
 $n = 3$  : the level of rotary photons/photons,  
 $n = 4$  : the level of photinos.
17. Because of the rhombus structure, the Elementary Particles Model 2008 results solely in the formation of the (anti-)proton and the (anti-)electron and no other form of (anti-)matter. (All "dark matter" consists of these four basic building blocks of matter).
18. Because of the rhombus shape applied consistently, these four particles complete matter are the only possible stable results. The proton/electron are the only possible stable basic building blocks of ordinary matter and black-hole matter; the anti-proton and anti-electron are the only possible stable basic building blocks of antimatter.

19. A consequence of the rhombus shape is the complete symmetry between equivalent particles (anti-) matter, and the opposite charge (L) and magnetic spin (M) that results. The rhombus shape shows that the EPM 2008 is:
- ) completely (super)symmetrical in elementary particle structure,
  - ) characterized by a consistent duality of +/- signs of charge and magnetic spin,
- Also, for the first time, the phenomenon of annihilation is explained and made understandable.
20. The Simplified Standard Model 2008 is very simple in its premises, provides detailed spatial structure of all particles, together with a complete description and quantitative determination of all physical properties.

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Zwijndrecht, The Netherlands

22<sup>th</sup> December 2008.

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## APPENDIX I: WHY EQUATION $E = mc^2$ IS NOT VALID FOR CALCULATING MASS:

As of this writing (2008), the equation  $E = mc^2$  is used universally and without limitations for deducing the mass (m) of elementary particles from the apparently readily measurable kinetic energy E. This mass (m) is not expressed as fractional parts of the proton/electron/neutron.

The mass of a particle can be determined from energy E in two different ways:

I) Based on only the “*external*” velocity/rotational velocity of the particle, excluding any form of *internal*” energy through annihilation. This path is described by  $E = \frac{1}{2} mv^2$ ,

II) Based on the “*internal*” rotational velocity by releasing this energy via annihilation, excluding any form of “*external*” kinetic energy. Because annihilation involves two equivalent particles rotating at the speed of light, this path is described by  $E = mc^2$ .

Both paths cannot be described together as is done currently.

**Ad I) For “external” varieties of linear velocity and rotational velocity, the basic equation applies:**

$$E = \frac{1}{2} m(v_l)^2 + \frac{1}{2} m(v_r)^2 + \frac{1}{2} m(v_{r1})^2 + \frac{1}{2} m(v_{r2})^2$$

In order to deduce an elementary particle’s mass (m) from its energy (E), the following needs to be determined separately:

- a) the external linear velocity  $v_l$ ,
- b) the particle’s external rotational velocity  $v_r$  for example inside a particle accelerator,
- c) the particle’s external rotational velocity  $v_{r1}$  around its long axis  $v_{r1}$  and around its short axis  $v_{r2}$ , both of which are quite difficult to determine,
- d) the particle’s kinetic energy E, separated in:
  - 1) linear kinetic energy:  $(\frac{1}{2} m.v_l^2)$ ,
  - 2) kinetic rotational energy of the particle as a whole  $(\frac{1}{2} m.v_r^2)$  and
  - 3) kinetic rotational energy around its axes  $(\frac{1}{2} m.v_{r1}^2)$  and  $(\frac{1}{2} m.v_{r2}^2)$  respectively

During these measurements there can be no *form of annihilation*. During annihilation (externally invisible and non-measurable) internal rotational energy is converted to photons which possess mass (m), charge (L) and magnetic spin (M)! Annihilation thus disturbs these measurements to establish mass by resulting in *much higher* value for the mass of a particle. A similar process applies to the *impulse* of elementary particles.

*During experiments in particle accelerators, the collision of particles of matter always and as a matter of principle is associated with the release of antimatter particles and thus, annihilation. The method described in Ad I) is therefore fundamentally impossible.*

**Ad II) From “internal” energy of matter through annihilation:**

At the lowest level of matter formation, particles of matter (rotary photons) rotate at the speed of light around their axes, causing them to exhibit characteristics of mass, charge and magnetic spin. This “*internal*” kinetic rotational energy for each particle matter/antimatter can be described with:  $E = \frac{1}{2} mv^2 = \frac{1}{2} mc^2$ .

When both particles have equal velocities, the physical contact between them results in complete annihilation, described with  $E = 2 \cdot \frac{1}{2} mc^2 = mc^2$ . On annihilation, the rotary photon is stripped of its rotation and degrades to apparently matter- and mass-less photons and photinos.

To determine mass through annihilation, *all released photons and photinos must be quantitatively determined*. Given the characteristics of photinos, this is fundamentally *impossible*.

**The determination of mass through annihilation is also doomed to fail.**

This method could only be possible if the “*external*” velocity between both particles has been reduced to zero, allowing annihilation to occur at calm circumstances and preventing *the photons* to disintegrate into photinos. Then all that’s need is a count of all photons which may be technically possible.

### III) Necessity for separating different varieties of kinetic energy:

Currently, no separation is applied between both fundamentally different kinetic energies when interpreting measurement data from particle accelerators. This is incorrect. Application of  $E = mc^2$  results in a systematic overestimation of the mass of particles expressed in  $\text{GeV}/c^2$ . The only correct expression of the mass of elementary particles is as fractional parts of the mass of the proton/electron.

### IV) Relativity Theory and the wide application of $E = mc^2$ are incorrect:

The  $c$  in  $E = mc^2$  refers only to the “internal” rotation of rotary photons at the speed of light on annihilation. This property is *not visible* externally.

$E = mc^2$  does not apply to linear velocity  $c_1$  or external rotational velocity  $v_r$ , nor for the rotation of a particle around its axis  $v_{r1}/v_{r2}$ !

It is because of this that the author rejects  $E = mc^2$  as equation with wide application.  $E = mc^2$  is deduced above, completely without any reference to Relativity Theory. The author posits that  $E = mc^2$  only applies to the specific case of internal annihilation when rotary photons rotate at the speed of light. This energy is not measurable as such.

### V) Consequences for published data:

The author principally challenges all measurement data published so far!

## LIST OF FIGURES IN THE PARALLEL DOCUMENT:

- Figure 1a/1b:** The proton p.photino and electron e.photino as stationary vibrations;
- Figure 2a/2b:** The proton p.photino and electron e.photino as stationary vibrations, slowly (C)- or (AC)-rotating around the long axis (1D);
- Figure 3a/3b:** The proton p.photino and electron e.photino as stationary vibrations, slowly (C)- or (AC)-rotating around both the long axis (1D) and the short axis (2D);
- Figure 4a/4b:** Cluster of 5 proton p.photinos 1 rotating (C) and cluster of 5 proton p.photinos 2 rotating (AC);
- Figure 5a/5b:** Cluster of 5 electron e.photinos 1 rotating (C) and cluster of 5 electron e.photinos 2 rotating (AC);
- Figure 6a/6b:** The rotary p.photon 1 rotating (C) and the rotary p.photon 2 rotating (AC);
- Figure 7a/7b:** The rotary e.photon 1 rotating (C) and the rotary e.photon 2 rotating (AC);
- Figure 8a/8b:** The proton p.string 1 and the proton p.string 2;
- Figure 9a/9b:** The electron e.string 1 and the electron e.string 2;
- Figure 10a/10b:** The proton p.quark 1 and the proton p.quark 2;
- Figure 11a/11b:** The electron e.quark 1 and the electron e.quark 2;
- Figure 12:** The proton 1;
- Figure 13:** The anti-proton 2;
- Figure 14:** The electron 1;
- Figure 15:** The anti-electron 2.

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