

DEFLECTION OF ALL ELEKTOMAGNETIC RADIATION AND PARTICLE RADIATION PLUS THE DOUBLE DOPPLER EFFECT:

A) Deflection of radiation:

- Except gravity all other forms of electromagnetic radiation and particle one show physical characteristic of: 1) mass, 2) charge, 3) magnetic spin and 4) kinetic energy. All the stars and galaxies are surrounded by electric fields and magnetic fields. That is why all forms of radiation (except gravity) get a slight deflection in their orbits within the universe to sphere-shell. Gravity affects only atoms and has no effect on non atomic radiation:
- Estimated this deflection is only one degree every 10 to 40 millennia average and can hardly be measured, maybe not at all. Because of this slight deflection electromagnetic radiation and particle beams do not continue purely in straight lines but in helical orbits within the universe to sphere-shell with a curvature radius being 10 to 40 million light-years and a screw patch of 3 to 5 million light-years:
- With one full revolution within this spiral shape and a distance of about 60 million light-year electromagnetic radiation moved net 3 to 6 million light-years compared to the emission point. Depending on the amount of deflection the universe is *5 to 10 times smaller* than observed and measured:
- Because of these helical paths we also see one and the same object in a plurality at different projections in the sky and thus it results in a large number of double counting. So universe contains net much less galaxies, matter and kinetic energy than we believe to observe and to measure:

B) Double Doppler effect:

- For all types of electromagnetic radiation and particle beams, the wavelength and hence the observed frequency of this radiation are influenced by the radial speed: the Doppler effect. That applies both to the speed of the light-emitting object in space and for the velocities of the earth itself where light and other radiation from the universe are captured and analyzed:
- All celestial bodies in the universe including the earth make 6 to 9 different relevant forms of (rotational or translational) speeds, each with a magnitude of tens to hundreds of km/s with respect to the center C of the universe. Each speed generates its own Doppler effect on the frequency of all emitted radiation and absorbed radiation:
- All electromagnetic radiation and beamed particles from distant galaxies show cumulatively 6 to 9 *double Doppler effects* on their wavelengths and frequencies. In order to reduce the actual nature of the electromagnetic radiation emitted in the past should this radiation to be corrected. In any case the Doppler effect of the earth itself:
- Initially, all velocities of the earth in the universe compared to C quantitatively determined, and the angles at which these speeds are in mutual with respect to the local surface of the universe-sphere-shell:
- Perhaps it succeeds from the collective wavelength / frequency of the 6 to 9 at different speeds determining objects in the universe and the local circumstances in which radiation was emitted:
- Perhaps from the collective wavelength/frequency can be deduced in 6-9 different speeds

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* 1 INTRODUCTION:

The author considers the universe-sphere-shell as a completely closed system for matter and energy with a fixed cycle of 29 steps in a fixed period of about $(2 \text{ to } 3) \times 10^{12}$ years and completely energy neutral is settled.

Therefore the universe-sphere-shell can endlessly repeat itself. These 29 steps are accurately described in **documents G7 and G8** www.uitewijkwinkel.eu . The universe cycle can be modeled mathematical and then quantified in detail.

All forms of electromagnetic radiation (neutrinos = frankinos and photons; **document F1b**), and particle radiation have the basic characteristics of: 1) mass (electromagnetic radiation), or mass and matter (particle radiation), 2) charge, 3) magnetic spin and 4) energy.

Galaxies and their billions of stars have electric fields and magnetic ones around them so that the orbits of all radiation are deflected, electromagnetic radiation still in very small extent. Each beam follows helical orbits, so this radiation cannot escape from one of the galaxies. There all forms of radiation are reformed into protons and electrons and ultimately to hydrogen. That hydrogen will reform visible stars that are at the end of their life they will be entrapped in the central black hole of the galaxy.

This extremely slight deflection keep all types of electro-magnetic radiation and particles always moving to 100% within the universe-sphere-shell. Not any form of radiation can thereby escape the universe-sphere-shell or the universe except gravity radiation. The universe-sphere-shell constitutes a complete and 100% closed system for mass, matter and kinetic energy!

-) Gravity:

Gravity is solely generated by the 'shell'-electrons of atoms in combination with the speed of that atom in the universe with respect to the center C of the universe. Gravity influences only the orbits of atoms and does not response (the orbits of) loose subatomic particles, photons, neutrinos (= frankinos) and higgs particles!

Gravity is the only form of 'radiation' without any characteristics of mass, charge, magnetic spin and kinetic energy. Therefore gravity can move with infinite speed through the universe! (The same applies to the universe clock time)

In contrast to all other forms of radiation gravity is not deflected by any fields, not even by gravity fields. Thereby gravity fields extend over much greater distances in the universe than the electric fields and magnetic ones from stars, black holes and galaxies. For space and time, see **document G2**.

Gravity is the only force of the atom which is working on the scale of the universe and beyond. (Electric and magnetic fields and forces from stars and galaxies are curved and work much more locally. They don't reach the scale of the universe). Gravity is the only form of radiation that leaves the universe! Gravity is really not accumulating within the universe. Gravity radiation prevents that mass and matter in the form of atoms can escape into the empty space beyond the universe-spherical shell.

The harmonious cooperation between gravity, electrical fields and magnetic fields results in the impossibility that any form of a) mass or matter / atoms, b) electromagnetic radiation c) particle radiation and thereby d) kinetic energy can escape from this universe-sphere-shell. Therefore, the universe is one completely and absolutely closed system for mass, matter and kinetic energy!

-) The universe is spherical and the galaxies are distributed fairly uniformly over the universe-sphere shell:

Believing in the *Big Bang*, a singularity or the Little Bang theory of the author, in all cases the expansion of the universe is spherically symmetrical. In all cases, the universe started as a universe-spherical-shell from one central point C which lies in the center of this balloon-shaped universe.

*** 2) PROBLEM:**

At the Little Bang all matter was emitted from a single point in the universe; the center C of it. At this stage (step 23) of the universe cycle for the majority that ejected matter is present in the form of stars, galaxies and their central black holes. Those galaxies are supposed to stand roughly the same distance from the center C; they form one universe-sphere-shell of galaxies with C exactly in the center of the universe-sphere-shell.

If electromagnetic radiation of photons would move indefinitely through exactly in straightforward orbits would be both the inside and the outside of the universe-sphere-shell should show themselves completely empty without galaxies. Both sides the universe-sphere-shell should be absolutely black!

In this way we do not observe the universe; on the contrary! From Earth, we see a universe for all sides to virtually uniformly filled with galaxies with the Earth as it were in the center of the universe! This must involve any distortion and a great form of optical illusion!

That 'optical illusion' can be explained by:

a) Deflecting of all forms of electromagnetic radiation:

In all electromagnetic radiation and particle radiation occur continuously extremely slight deviations in their orbits. These abnormalities are caused by electric fields and magnetic ones around stars, black holes and whole galaxies. These fields interact with the electric dipole and the magnetic quadrupole ($\downarrow\uparrow$) of the photon itself.

Because of this extremely slight deviation (s) electromagnetic radiation (neutrinos, photons) and particles of matter does not continue purely in straight lines but more in gigantic helical orbits within the universe-sphere-shell. This keeps the neutrinos and photons 100% run within the universe-sphere-shell which in practice acts as a completely closed system.

b) the Doppler effect:

Due to velocity in the universe of both: a) the emission point on the observed celestial body and b) of the observer on Earth in all types of electromagnetic radiation and particle radiation occur changes in the frequencies and wavelengths. There is a double Doppler effect!

*** 3) DEFLECTION OF ELECTROMAGNETIC RADIATION AND PARTICLE RADIATION:**

1) The deflection of photons and of particle radiation:

The electric fields and magnetic ones around galaxies, stars and black holes bending slightly off the paths of electromagnetic radiation and particle one making within the universe-sphere-shell helical orbits are completed, considered over a period of tens of millions of years.

Such a helix has a radius and a pitch resulting in a closed universe-sphere-shell. The sizes of the radius and pitch depend on the strengths of the electric fields and magnetic ones.

Estimated by the author the degree of deflection is on average only 1 degree every 10 to 40 millennia. Such a small deviation in the orbits of radiation is almost impossible to establish quantitatively. Which virtually no measurable deflection resulting in huge helical form with an average radius of 5 to 15 million light-years and a pitch of about 5 to 10% of one circle. That is broadly 60 million light-years and a pitch of 3 to 6 million light-years. See **Figure 74 of document G8**.

Problem is currently unknown how much:

-) the degree of deviation for the various types of electromagnetic radiation and particle ones,
 -) the pitches of these helices for the different types of radiation are,
 -) Could be available secondary curves? Then the orbits are not exact helices.
- These quantities are possible to trace it out astronomical data.

Anyhow, on earth the light from a single object seems to come from multiple, completely different sides of the universe where the mentioned object really does not dwell.

2) The universe is much smaller than measured:

The extent and form of deflection has a tremendous impact on:

- a) the dimensions of the universe,
- b) the number of galaxies and
- c) the quantity of matter, charge, magnetic spin and kinetic energy contained therein.

In these cases they can differ a factor of 5 to 10 times smaller than measured data.

See **Figure 75 of document G8**.

Ad 2a): The shape of the universe is very different of what is observed:

Due to that tiny deflection from Earth we observe the universe completely differently than in the form of a thin sphere-shell around the center C of the universe. The real picture of the universe we never get to see. We observe the universe from Earth with accelerating expansion and virtually completely uniformly filled with galaxies. The Earth is apparently at the center of the universe which is not the case. See **Figure 76 of document G8**.

From all other galaxies in this universe-sphere-shell we would observe the same as in the perception on earth. There, too, each observation point seems to be the central place in the universe. That same everywhere and totally distorted picture can only be explained if light in the universe is subject to a very slight deflection.

When light does not exactly propagates linearly but in helical beams then physically the universe-sphere-shell must be a factor 5 to 10 times smaller in size than currently accepted due to the measurements from the earth. Then the universe is not 13.8 billion (10^9) light-years but because of the large helical orbits only 2.5 to 3.0 billion (10^9) light-years across.

Within that much smaller space of the universe-sphere-shell that light moved during 13.7 billion light-years! (According to the author, all neutrinos (= frankinos), photons and particle radiation are reformed into protons, electrons and then into hydrogen atoms within a period of 14 to 18 billion (10^9) years. Technically we cannot look back farther!)

Ad 2b and 2c): One galaxy is observed multiple times:

Because of these helical paths of electromagnetic radiation and particle one, we can observe several times the same galaxy (5 to 20 times and possibly more) at totally different locations in the universe-sphere-shell. It is not expected that one galaxy is observed in various stages of development. Anyway, there is a lot of duplication.

The author expects that the number of galaxies and the amount of mass / matter, charge, magnetic spin and kinetic energy are 5 to 10 times smaller than assumed until now! He expects a universe with some 4 – 20 billion (10^9) galaxies. See **Figure 77 of document G8**.

That multiple detection of each galaxy is a major problem in determining the amount of matter, mass, charge and magnetic spin in the preparation of mass balance of the universe compared to observed energy.

*** 4) EFFECTS OF SPEED IN THE UNIVERSE:****1) The number of movements of matter in the universe are now unknown, and with it the number of Doppler effects:**

In observation of galaxies far beyond the Milky Way celestial bodies own a set of 6 to 9 relevant velocities, each more than 30 km/s. Those speeds are roughly the same as the 6 to 9 relevant moves that the early Earth and the Milky Way itself. Only these net speeds elsewhere in the universe-sphere-shell are at an angle α (object-center C of the universe-earth).

See **figure 36 document G8**.

When generating any of these celestial bodies elsewhere in the universe that own 6 to 9 and possibly even 11 movements *each causes its own Doppler effect* on the emitted radiation. The earth itself is also subject to 6 to 9 movements each with its own Doppler effect with respect to the center C of the universe. Today's astronomers only consider one radial speed of a celestial body relative to the Earth.

For all objects far beyond the Milky Way is overall than even a double Doppler effect of 6 to 9 relevant movements of both the object itself and that of the earth in the universe!

The tracing of the nature of the emitted radiation actually means a complex correction. These corrections to the Doppler effect are not made today. Those 6 to 9 speeds of the object and that of the earth in the universe with respect to the center C of the universe are not (yet) quantitatively determined.

Astrophysicists have to be aware of the enormous speeds in the universe, and especially the impact of these rates on all atoms and thus both a) all emitted radiation and b) all on Earth captured forms of radiation from the universe. Additionally those speeds have effects on the forces of atoms and gravity. Here thermal broadening of the spectral lines was not discussed!

2) Systematic errors due to Doppler effects:

As long as the observations from earth in the universe happen within the Milky Way all there present celestial bodies possess more or less the same set of 6 to 9 relevant movements.

Within one galaxy the correction rate and the Doppler effect will be probably relatively easy to achieve.

The situation is different in astronomical research far beyond the Milky Way where 6 to 9 speeds are not the same everywhere and those speeds are not in the same direction and spaced at the mentioned angle α .

The author expects systematic errors when interpreting the measurement data obtained thanks to astronomical and astrophysical research. The opportunity is not impossible that already were drawn wrong conclusions. The chances increase with the distance between earth and the examined galaxy in the universe-sphere-shell.

3) In the first part of the expansion of the universe is gravity still absent:

The first 5 – 10 billion (10^9) years after the Little Bang the universe expanded only as spherical layers filled with loose protons alternated with layers of loose electrons. They do not generate gravity or temperature. During that super cold period without atoms gravity is still absent and therefore gravitational energy is also absent in the universe. At the start of the universe the only present speed is the spherically symmetrical rectilinear expansion velocity v_{ex} away from the center C of the universe and being a third to half the speed of light during many billions of years.

30 to 35 billion years ago each proton caught one own electron orbiting around the proton and the hydrogen atom was created. The shell-electron of this hydrogen atom generates in combination with the expansion rate basis forces of the atom: gravity and the chemical covalent radical force. With the atom temperature is also generated (**documents C2 and F1d**).

-) The huge expansion rate of a third to half of the speed of light causes that those forces as gravity are strong immediately. Then gravity started to decelerate the expansion of the universe. That slowdown is still continuing. (In about 150 to 250 billion years this expansion decreases to zero eventually. Then the universe-sphere-shell will again shrink to C.)
-) The chemical covalent radical force of the hydrogen atom immediately results in the formation of the hydrogen molecule and thereby is much bonding heat. With the atom and molecule temperature returns and the universe-sphere-shell becomes very hot.
-) With the formation of the electron pair in the hydrogen molecule also creates the van der Waals force and thus the possibility of phase states. All the mentioned forces on the atom are velocity or kinetic energy related forces of the atom. See the **documents C1, C2, C3 and F1d**.

4.1 THE BIRTH OF 6 to 9 SPEEDS IN THE UNIVERSE:

Since 30-35 billion years the gravity of the hydrogen atom and molecule started the deceleration of the expansion rate of the universe relative to the center C of the universe. In the mean time the expansion kinetic energy is transformed into rotational energy and gravitational one. The hydrogen gas starts to revolve in a plane that should be *perpendicular* to the direction of the expansion velocity.

So the first time the inhibition by gravity results in the creation of an angular speed in the hydrogen gas around one point R1. All points of revolving R1 form much later the nucleus of a galaxy.

During the further slow down the expansion velocity creates all kinds of shapes of sub rotations in the universe-sphere-shell with those hydrogen spheres that must rotate perpendicular to the deceleration also again.

These rotations and revolvings come into an increasingly larger scale. Overall this results in 4 to 6 different growing forms of angular speed in the universe-sphere-shell on an increasingly large scale. Each of their orbital speeds is many tens to hundreds of km/s. See **Figure 41 of document G8** as an impression of it.

When after the formation of hydrogen this hot hydrogen gas or plasma cools down to its condensation temperature at points of first rotation R1, liquid hydrogen bulbs are 'created' everywhere and have to 4 to 6 rotational speeds.

After billions of supernova explosions (Big Bangs), approximately 10 billion later, and 20 to 25 billion years ago, separate angular velocities are added to those large-scale revolvings on the scale of galaxies and smaller. This results in a number of 6 to 9 rotations and / or revolvings, possibly even 10 to 11 ones.

Along with the expansion velocity all galaxies in the universe are now subject to a complex of 6 to 11 movements each with a speed of several tens to hundreds of km/s. Because of the different rotational movements and bending of light all galaxies seem jumbled to stand in the universe.

-) As one looks further back in time it seems the universe expands accelerated:

The inhibition by gravity of the expansion rate of the universe went very quickly at first about 30 to 35 billion years ago. The decline in the expansion rate goes parabolic and is now becoming slower.

However, looking back in time we see the expansion accelerated. The longer ago the faster the objects removed themselves from each other and from the earth, the faster the expansion. 'Inverse the movie' and you understand that it is a mistake to conclude that the universe is expanding faster and faster. The reverse is the case.

In reality, the universe expands more slowly away from the center C of the universe!

The deflection of light causes a completely distorted virtual image of the universe-sphere-shell seen from earth. The universe-sphere-shell itself one will never see, at most through animation.

Incidentally, that image of ever braked expansion (and seemingly ever-expanding accelerated universe is completely in accordance with the **documents in G7 and G8** described universe model of the author. Since the formation of the hydrogen atom and hence of gravity is the expansion velocity of the universe-sphere-shell increasingly slowed down.

-) Slowing expansion to full zero:

Eventually, gravity slows down the expansion of the universe to a complete stop. That only happens when all the stars lost their nuclear energy while all previously emitted electromagnetic radiation and particle radiation reformed for 100% into protons and electrons and finally hydrogen. After the fusion of hydrogen to \geq beryllium these atoms can be transferred to black-hole atoms (**figures 18a – 18n document F1e**) and then accepted in the central black hole of the galaxy.

After expansion speed zero the contraction of the universe starts under the influence of gravity. Gravity ensures that the universe is a completely closed system for all matter in the form of atoms, molecules, black-hole atoms, black holes and similar compressed celestial objects such as white dwarfs, neutron stars and quasars.

-) Ever increasing red shift when objects farther away;

the objects appear to recede with increasing speed from the earth:

Since the formation of the hydrogen atom, 30 to 35 billion years ago, (and therefore no longer perceptible), when the expansion rate of a third to half the speed of light spherically symmetrically, slows down. In the past the universe expanded so more quickly than is

currently the case. As the object to be investigated further from Earth in the universe and the universe spherical shell takes the observed red shift and hence the expansion velocity of the object and cumulative parabolic increase; **figure 79 of document G8**.

Observations from Earth with advanced equipment indicate an accelerating expanding universe. It also relies on an optical illusion. Now the universe-sphere-shell expands more slowly and earlier faster. That can only be seen when the observation would be made from the center C of the universe and not from Earth. Only from C are 6 to 9 rotational movements (with a delay of billions of years) can be observed and quantitatively be identified by counting back to the real universe clock time through the universe model.

4.2 ATOMIC FORCE COMPONENTS ARE RELATED TO SPEED ALSO:

The by the atom generated physical forces of the atom and chemical ones are related to the different linear speeds of the atom and angular ones in the universe. These forces, including gravity, are generated by the shell-electrons of the atom.

-) The physical forces and chemical ones are the same everywhere in the universe:

The physical forces and chemical ones on the atom are universe wide qualitatively the same. However these forces change quantitatively with the velocity of the atom. The number and strength of these forces, and binding on the atom are varying quantitatively during the universe cycle and universe clock time; also within the atom. This also has an impact on the frequency of emitted electromagnetic radiation!

-) Also, almost all constants of nature change very slowly over time:

The expansion rate of the universe is still being held back and converted into rotational movements. Thereby changing these 6 to 9 velocity components quantitatively. On all of the atoms and molecules thereby also change extremely slowly, the strength of the force and binding components with time.

All the speed related forces of the atom change extremely slowly in time, including their associated constants. Therefore the universe has hardly any real constants of nature! The most notorious one is the gravitational constant of Newton's law of gravity.

Only the proton-charge, the size of the proton-spin and the speed of light in vacuum seem to be real constants of nature. See **document G10**. On the smallest scale the total number of higgs particles in the universe can be added to this set. This implies the conservation law of mass.

The total electrical charge, momentum and angular momentum in the universe seems to be constant, all being zero. Probably the period of the universe cycle is a constant of nature as well.

-) Be careful with uncorrected research data from space:

The effect of speed on the force components and bonds of atoms and molecules has its influence

- on the autonomic Doppler effects to radiation, and

- on a result of which 6 to 9 movements of each celestial body in the universe.

All in all, there is a very complicated complex of speed effects and corrections.

For the above reasons from the universe collected radiation data of already billions (10^9) of years ago emitted may not be interpreted as a bijection to knowledge gotten of today's results of measurements of the same matter on Earth.

When interpreting research findings, the chance of erroneous assumptions is present.

4.3 ADJUSTMENTS ON RADIATION:

All radiation that came from the universe billions of years ago must be corrected effectively:

- a) for the Doppler effect of the 'emitter' of the then 6 to 9 speeds and directions of the observed celestial body with respect to the center C of the universe. As the observed galaxy is farther away it moves seemingly ever faster away from us what observable is via a stronger red shift. This is Hubble's law qualitatively.
- b) for the Doppler effect of the 'recipient' with the current speeds and directions of the earth with respect to C.
- c) for the angle α between the 'emitter' and 'receiver' in the universe-sphere-shell relative to the center C of the universe.
- d) for the former (to calculate) components of forces and bonds within the atoms or molecules and its effects on the frequencies that emitted the atoms or molecules previously.

To be able to get the previous quantities, one must try to refine the net expansion velocity v_{ex} of that time and the other 6 to 9 speeds of the considered galaxy seen in the universe. Of course Doppler always needs the radial speed components.

In short, a difficult to quantify complex of corrections, because both the former speeds of the object and the current rates are difficult to establish both qualitatively and quantitatively.

-) Mathematical model of the universe cycle is indispensable and necessary:

The conversion of all speeds in the universe can be realized only through modeling the universe cycle. Thus the history of the universe is traced in some detail and probably its future can be predicted.

*** 5) DISCUSSION:**

1) The degree of deflection is unknown:

The current astronomical research starts from the premise that all electromagnetic radiation and particle radiation moves purely linear without any deflection on the way. However, all neutrinos (frankinos), all photons and ion possess charge or electrical dipoles and spin or magnetical quadrupoles. Around all stars and galaxies can be found electric and magnetic fields. These two kinds of fields deflect all these forms of radiation. So all the beams are curved.

Because of this very slight deviation of all the beams, we observe the universe very different than its real structure. And many virtual images of stars and galaxies are seen. From earth, we see the universe uniformly filled with galaxies while in reality galaxies are nicely situated on a round universe-sphere-shell. Its outside and inside are completely empty.

The universe provides us of itself completely distorted and virtual images.

The extremely small deflections still have to be quantified by measuring anyhow.

2) Currently, no account is taken of the Doppler effect of 6 to 9 speeds in the universe:

Measurements of electromagnetic radiation to be interpreted without correction by:

- the single Doppler effect (for measurements within the Milky Way) or
- the double Doppler effect (for measurements outside the Milky Way).

Within the Milky Way there is a relatively simple Doppler effect with respect to the center C of the universe. When measured far beyond the Milky Way is even a double Doppler effect compared to C that is getting stronger as it studied galaxy is farther away from the earth. The resulting measurement data are to be corrected not only on:

- a) the then Doppler effect of the object itself,
- b) at the current Doppler effect of the earth and also
- c) on the then built-up of forces and bonds of atoms.

3) Corrections on speeds and double Doppler effect are extremely complex:

The correction on all speeds and on the Doppler effect of those speeds will in fact prove to be far from easy let alone the corrections to the then built up forces and bonds within atoms and molecules to the state of billions of years ago!

However without adjustments to the Doppler effect, the data can result in serious misinterpretations and erroneous conclusions. The probability for it is subsequently increases with the distance to the earth.

4) Modeling universe cycle requires:

It will already be extremely difficult to reduce all the speeds of the earth in the universe with respect to C. This is necessary to be able to split the actual frequencies of emitted electromagnetic radiation and that of gravity about the 6 to 9 velocities in the universe. Modeling of the universe and the cycle that governs the universe is therefore an absolutely necessary requirement.

*** 6) CONCLUSIONS:**

- 1) The deviation of electromagnetic radiation in the universe must be determined quantitatively and with it the fixed shape of the helical movement, and both orbits of electromagnetic radiation such as that of particle radiation. The radius and the pitch of this helical orbit of the electromagnetic beam within the universe-sphere-shell have yet to be determined.
- 2) Due to the helical form of electromagnetic rays, the universe may be a factor of 5 to 10 times smaller than, adopted and demonstrated by modern measurements.
No 'big' universe with a radius of 15 ± 1 billion (10^9) light-years but a 'small' universe with a radius of only 3.0 ± 0.5 billion light-years.
- 3) Captured from the universe, but already millions of years ago emitted electromagnetic radiation and gravitational waves should not be interpreted just like that, one to one, and / or be compared with the measurements of the same material on the earth as the default!
- 4) The expansion rate in the past and present speeds are qualitatively and quantitatively difficult to establish now. Modeling of the universe cycle is required to derive these former speeds and expansion rate and to fill it quantitatively.

- 5) At first all forms of electromagnetic radiation and gravity in the universe must be corrected slightly for the Doppler effect until test results should be interpreted. This correction of the Doppler effect is not expected to be easy!
- 6) In addition to correction of the Doppler effect of the earth should also be adjusted to the then rate conditions and the former Doppler effect of the object that sent the radiation.
- 7) Scientists should be careful with interpreting raw measurement data in the universe.
- 8) For publications regarding research in the universe standard should be discussed how within the framework of the research has to be dealt with the Doppler effect as well as the effects of the Doppler effect (can) on the observations and the conclusions drawn.

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