Version 7.2-

The Universes

- how they arise and how they disappear again

Ole Lotz March 2023

In the old days - before binoculars were invented - the universe consisted of what you could see with your own eyes: the earth was flat as a pancake, the sun and moon drove or sailed around in their orbits, and around them sat stars like luminous dots in the black night sky. These simple observations were interpreted by philosophers, priests and other wise people. And these interpretations were then what ordinary people at the time had to think of as the Universe.

Today we know much more. The gods and faith are supplanted by science and telescopes. And they tell us that the entire universe – with its myriad planets, stars and galaxies – was created all at once, 13.8 billion years ago. Big Bang. And that is what we believe in today.
But despite the overwhelming amount of scientific work, I allow myself - with great respect for this - to doubt that this is the final concept.
There is still much we do not understand. Where does all the mass in the total sum of dust, globes, stars, black houses and galaxies come from? And why is the university expanding at an increasing rate? What is the dark matter? What is the dark energy? What is gravity?
There's still something we don't know.
In what follows, I shall try - with great humility - to suggest some answers. And thus justify my doubts.
Try to hang on, even if some well-established theories are challenged.

First, a little about some core concepts.

About energy
Physical energy can have many forms of expressions. But common to these is that a form can always be expressed as a product of a potential and the associated quantity.
All forms of energy can be converted into other forms, but for all transactions the basic law of physics applies: energy is always preserved, i.e., that it can neither be created nor disappear by itself.
All forms of energy can be measured in Joules with units kg*meter^2/sec^2
It is precisely these three concepts, mass, space and time, that are crucial for understanding the layout of the universe.

The same units are included in the law of gravitation and Newton's 2. law of force and acceleration. But whereas Newton believed that these laws are fixed and universal, Einstein has shown that they apply only to the place and time at which you find yourself. In other places, a meter does not have to be a meter, and a second can last longer or shorter. With this reservation, the two laws describe the force acting between two bodies.

One cannot speak of energy without mentioning entropy, which is the quantity of heat energy. (Temperature is its potential). Entropy is an expression of the energy loss that occurs with all irreversible processes. Most often as losses in the form of heat energy and where the heat energy can no longer be utilized. E.g. as heat of friction. In practice, the entropy is always greater than zero. Only with completely reversible processes, the entropy is zero. But in those situations, things change. Entropy thus has a direction: it is always growing.

About time

After all, time is a strange thing. Think, for example, on a weight that hangs and swings frictionlessly – i.e. reversible.

Where has time gone? You can't even tell whether time is moving forward or whether it's going backwards – from the present to the past. There is no difference. Only when something happens, i.e. when entropy grows, can we see that over time the weight has its energy and finally hangs completely still. Then we will no longer be in doubt. Time has passed from the condition before to the condition after. From past, via present to future... Time also has a direction.

In a book by the Italian astrophysicist, Carlo Rovelli: "The Order of Time", Gyldendal Publishers, 2020, he gives a very good description of the close connection between the direction of time and the direction ofentropy..

About symmetry

In physics, three general symmetries are used for two bodies: (CPT symmetry):

C: sign shift in electrical charge.

P: mirroring the spatial coordinates, x, y, z, in the corresponding -x, -y, -z.

T: sign shift on the time axis

Only if all three parameter s are symmetrical about a 0-point is symmetry complete. And in that case, all the laws of physics will be the same for the two bodies.

Until now, this article has only described conditions that are known to most people interested in modern physics.

But now comes something new and different and that will surely be contradicted.

I believe that it is necessarily apply the parameter M, to mass (or equivalent to it, energy).

This means that if all 4 parameters of the CPTM-symmetry have opposite signs, then a creature living in such a negative world will not perceive of its existence differently than we do here in our positive world. Even if this negative creature, from our point of view, will perceive minus 295 degrees kelvin as a pleasant summer temperature. And also, even if his reckoning of time- again seen from us - will go from future to past!

Note here, that the designation of the same particles with different charge is antibodies. But antibodies are also covered by my claim that all four parameters can be either positive or negative.

I am well aware that these ideas must appear to be completely unreal claims. But if one is to give an explanation of the creation and development of the Universe - one that agrees with what we observe - it may be necessary to think unthinkable thoughts.

However, I can give some comfort in the fact that we will never see the negative creature or the negative world.

Negative mass and time going backwards are foolishness in our ordinary world, but quantum physics likes to operate with these concepts. So completely impossible they are not.

Gravity and acceleration

The relationships between two bodies are determined by the law of gravity and Newton's 2nd law. (With the aforementioned reservations)

In the following I use the designations m, l and t for mass, length and time.

The force of gravity, F, for the two bodies, 1 and 2, is: $G_{grav}\, m_1 m_2 / l^2$

Newton's 2nd law states that the gravitational acceleration, a, of body 1 is equal to F m2,

But if the laws are applied uncritically to bodies with different signs of mass, it will lead to the absurd phenomenon that a positive body will indeed repel a negative body, but at the same time this will accelerate towards the positive!
This obvious impossibility is the reason why the concept of negative mass has never really been accepted.

Yet it is my contention that such bodies will repel each other and that they will move away from each other with diminishing acceleration. Namely, if the bodies have both different mass signs and time direction. It should be remembered that just as force and acceleration are vectors with both a magnitude and a direction, so too time is a kind of vector. Time goes their separate ways for the two bodies. The square of t should be written as t_1 multiplied with t_2.
Therefore, complex figures must be taken into account in the formulas.
My assertion is based on the fact that observations show that distant galaxies are moving away from us at accelerating velocity. More about this later.

In a series of articles (last revised Feb. 2023): The Janus cosmological model: a paradigm shift. the authors, Petit and d'Agostini show that if you reverse all the parameters of the CPTM symmetry, you come to the conclusion that the two bodies will behave according to my assertion.
Unfortunately, the authors include both electric charge and the Einsteinian conception of gravitation in their calculations. This means that the mathematical equations become so complicated that I cannot assess the quality of their work.
It is my opinion that, since the problem first and foremost is a question of the direction (sign) of the quantities included in Newton's (and Einstein's) equations, one can obtain the same sign result using the simple Newton laws alone. But my skills in math are not good enough to carry out even such a much more manageable calculation myself. I ask fore help!

Formation and annihilation of mass/energy
The concept of annihilation is known, for example, from an electron and its antiparticle, the positron. The masses in these particles may disappear, but their total energy is recovered as gamma radiation. This process is reversible: the massless gamma radiation can spontaneously turn into particles with mass. (Note again that the prefix "anti" refers only to the sign of the electrical charges of the particles).

Similarly, another particle must be able to annihilate upon encounter with a similar, but negative and completely symmetrical, particle. But here, the total energy disappears. There is nothing left. Absolutely NOTHING! Since this process is also reversible, it must be possible to form equal amounts of positive and negative and completely symmetrical matter out of nowhere, e.g., empty space.

Presumably, the formation of this substance/energy/photons will take place in the form of very small units at the quantum level – or less. Maybe even less. Presumably, this process can take place only at the interface between the positive and negative world - namely, at the temperature 0 degrees Kelvin.
These primary units are so small that it is hardly possible to distinguish between mass, particles, photons, energy fields or other possible forms of energy. The vast majority of these newly formed "particles" will probably instantly – or almost immediately – annihilate again.

In quantum physics, the concept of quantum fluctuations plays a crucial role. Virtually all quanta can be thought of as part of harmonic oscillations.

I perceive the conditions in empty space as being a constant oscillation between negative and positive "particles". The mean is 0 – nothing! And that this 0 is precisely the zero point at which the parameters of the CPTM symmetry are reflected.
However, because of the uncertainty that always applies in quantum physics, quanta can sometimes deviate from the average pattern.

The fluctuating particles cannot be observed; after all, they are just nothing. But I believe that they are there.

I think the fluctuations sometimes allow a positive particle to escape from the dance with its negative partner and act as an independent entity. At this very first stage in the history of formation, this independent entity consists solely of energy and associated gravity. Maybe it's even the long-sought graviton? (Since I am not sure that the particle corresponds to the quantum physicists' concept of gravitons, I refer to the particle as "graviton" in the following)
It just can't be done at all, says physicists with knowledge of quantum physics' standard model. The model describes how the interaction between photons, electrons, quarks and gluons and the associated forces (electrical, weak and strong) works.
But they may overlook the fact that the Standard Model does not exist at all at this very early stage of the history.

Around the individual “graviton” exist only other "gravitons".

Formation of actual matter
The positive "gravitons", which do not immediately annihilate with a corresponding negative, apparently represent something unique in our positive world: energy is formed from nothing. (But now we know that the total mass is still 0)

What properties a "graviton" has, we cannot know. But I think I know the amount of energy of the individual "gravitons". Namely, about 0.00166 eV. See later about the background radiation CMB.

Since "gravitons" consist only of an energy/mass with a field of gravity, they will accumulate in larger clumps consisting only of others of the same kind. And these clumps will grow into bigger and bigger clumps.

I believe that it is *only* gravitational forces that can cause this clumping. The other forces that are a part of the standard-model, such as electrons, have not yet been "invented" at this stage. Therefore, the matter in these clumps cannot interact with light. The substance could therefore be the long sought "dark matter"?

Carlo Rovelli has a similar hypothesis. He believes that the dark clumps become so heavy and so concentrated that extreme conditions arise inside them. Such "witches’ cauldrons”, could be the environment where the forces and matters participating in the Standard Model in quantum physics are created?
And thus, the basis for the known atoms, molecules and later dust and stars that gathers in galaxies.

How to get from "gravitons" to the known quantum physics, and thus to the structure of atoms and matter, is beyond the scope of this article. We will never observe the corresponding formations in the corresponding negative universe, because all light from there is negative energy, and it will therefore be bent away by our own positive gravity.

As mentioned, the negative and positive gravitational forces in the two universes cause the bimetric bodies to be separated from each other. But why with accelerating speed? It is due to simple math:
In order to understand the math more easily, the entire universe is simplified into a series of equally large and equally heavy balls, and equal numbers of black/positive and red/negative, and that they lie evenly distributed on a one-dimensional axis.

OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO etc.
AB C

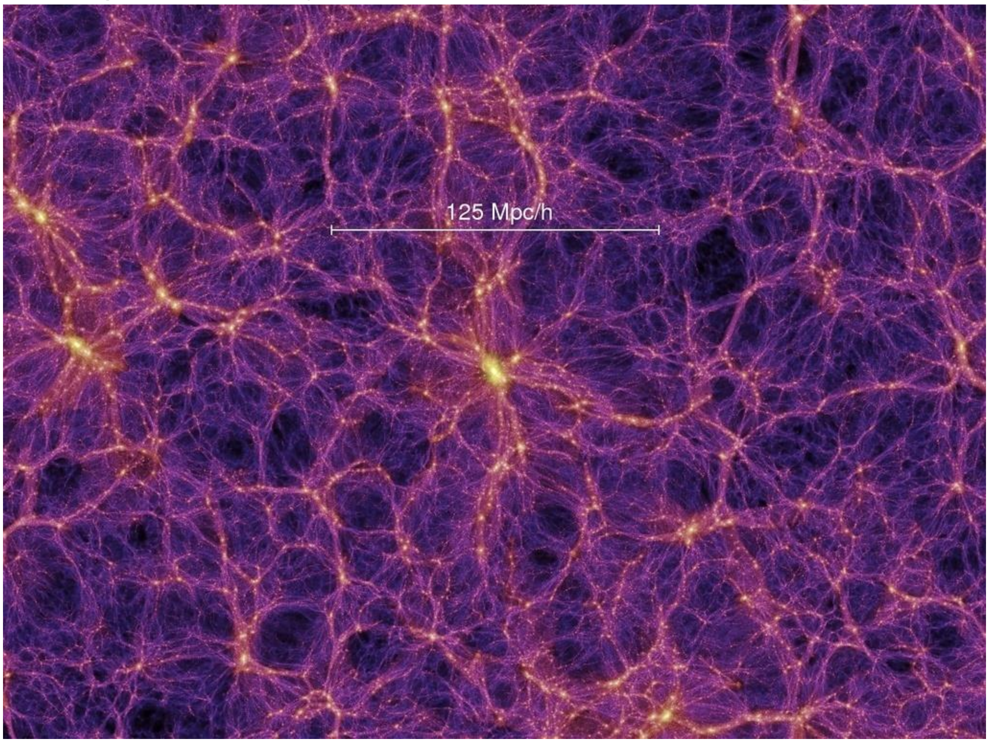
Then the average distance between two similar spheres will be twice as great as between two with different signs. And thus, the average outward gravity will be 4 times as great as the unifying force.
This means that ball A and ball B will move away from each other - with decreasing acceleration. There will thus become longer and longer between the balls. But since new balls are constantly being poured on, the average distance between the individual balls will remain constant. This means that ball A and ball C will move away from each other at accelerating speed.

Although the universe is three-dimensional and the balls are not evenly distributed, I believe that statistically, the same rules apply to stars and galaxies This may explain the observed accelerating distance between us and the distant galaxies.

As the distribution is not completely even, areas can arise locally where the positive forces predominate, and thus the lump grows. We ourselves live in a small positive galaxy cluster consisting of the Milky Way, the andromeda galaxy plus a few smaller galaxies.

If the above considerations are true, then they give a simple explanation of what the mysterious "dark energy" is: Negative matter with negative gravity!

The large-scale structure
The existence of the "double" lumpy and entangled universe is largely confirmed by the visible large-scale structure.
The image on is formed by an automated measurement of a smaller part of the universe.



See details and a amazing three-dimensional animation of a journey in between the galaxies here:
http://wwwmpa.mpagarching.mpg.de/galform/virgo/millennium/index.shtml

The image shows the spatial distribution of the positive matter in galaxies and clusters. The corresponding negative matter and galaxies (which we cannot observe directly) must be located precisely in the observable voids of the filament-like structure of the positive galaxies and galaxy clusters.
There is no reason to suggest that other regions of the Universe will not show a similar picture. No matter how far we distance ourselves from the area in time and distance.
It is my feeling that the distribution is fractal, i.e., that the distribution is controlled by the same algorithms, namely the law of gravity and Newton's laws, and therefore that the distribution seen in the picture is found in all scales - even the very smallest. Thise algorithms apply too to objects of dark matter.
The fractal structure is also reflected in the fact that it has now been shown that galaxy clusters also gather in the same fractal way to form even larger clusters of galaxy clusters.

The English astronomer, Fred Hoyle, developed the theory of the "Steady State" in the universe around the mid-twentieth century. But Hoyle could not indicate how the substance necessary to maintain the stable state is formed. And the Big Bang model prevailed.

I believe that my considerations show a possibility of how matter may constantly be created in empty space. And thus confirm the theory of Steady State. But the universe is not completely "steady". After all, the more distant galaxies are rushing away from us, and new are constantly arising.
Do not forget that our universe is only the positive half of the visible universe. The total weight, the total time, the total temperature is all exactly 0.

If my hypothesis is correct, it is not the empty space that expands, but only objects moving away influenced by mutual gravitational forces. What forces can affect empty space? Action requires counteraction.

The theory also refutes Einstein's theory that total gravity curves the entire space. After all, total gravity is exactly zero. But of course, the light from distant objects will be deflected locally by the galaxies - or other objects such as black holes - that it passes and will therefore zigzag its way through the universe.

The universe and universes
In the universe we can observe here from Earth, new matter is constantly being formed, but everything disappears again into empty space. Whether our universe ends where we can no longer distinguish the individual galaxies from each other, or whether it definetly ends where the objects in the space move outward at more than the speed of light, does not matter in principle. We never get any kind of information from thise objects. They do not exist for us.

We humans here on earth only have this one universe. The center of your universe is exactly where you are.
But a being on any other planet far from us will herself be the center of her very own universe, and hers universe looks and functions like ours.

When the well-known astrophysicist, Anja C. Andersen, is asked what is outside the universe, she replies: "What do you think yourself".
But if my theories about negative energy and negative time are right, she doesn't have to be quite so resigned. As a scientist she knows that outside our universe there will be exactly the same as inside – but for the questioner there is nothing.

Although simplicity not is a scientific proof, there is for me something extremely beautiful about the conclusion: Universes are constantly created , they grows - and they disappear again!

And if I'm right, the Big Bang theory must be a non-existent scientific monster. Which, unfortunately, has gradually acquired an almost dogmatic authority and in which almost everyone believes.
May I remind you of the fairy tale about the emperor's new clothes?

Big Bang?
I foresee that the reader knows the main arguments for the theory of the Big Bang, redshift and microwave basic radiation. Otherwise, I refer to the many popular science books and articles. Wikipedia gives a reasonably straightforward description.
So here only briefly: The theory says that 13.8 years ago the current universe was gathered in a more or less point-shaped body, which contained all the mass/energy of the universe under extremely high temperatures.
At some point, an expansion and cooling began, and the current universe of stars and galaxies began to take shape. Although this theory of the Big Bang is constantly changing, its main features are almost exclusive among astrophysicists.
But the theory does not explain where the energy of the singular start and subsequent development comes from. Nor does it explain the increasing speed of enlargement without resorting to exotic and as yet unknown concepts such as "dark energy", "cosmic vacuum" or "Einstein's constant". Designations that have no concrete content, but simply say that there must be "something" that works opposite to the known gravity.
Nor does it explain that the Universe is the same in all directions and at all observable distances and ages.
Only if one accepts the much simpler and more beautiful explanation that the so-called dark energy is simply negative gravity will the theory fit with what can be ascertained. As in my theory, where it doesn't all start with a giant bang, but rather as countless small incidents that barely say nudge.

Nor does the Big Bang theory explain that we can observe more galaxies that are only a few hundred million years from the beginning.
The first results from the new telescope, James Webb, confirm that there appear to be far greater and far more galaxies in the early universe than the Big Bang theory allows. And that they resemble the galaxies we know from our closer surroundings!

A star in our own Milky Way, HD 140283, was estimated in 2013 to be 14.46 +/- 0.8 billion years old. It could theoretically have just formed after the Big Bang. But the star contains measurable amounts of heavier elements. Such elements can only be formed by nuclear processes in a previous star. And that this star has released its contents to the surroundings in a super-explosion. Not much time is left for these preliminary processes!

I wouldn't be surprised if you once upon a time find other objects in the Milky Way that are even older. After all, the Milky Way does not participate in the accelerating movement towards nothingness.
However, later studies from 2021 estimate the age of the stars to somewhat less. But since I don't recognize Big Bang, it's pointless to me comparing the age of HD 140283 with the age of the universe.

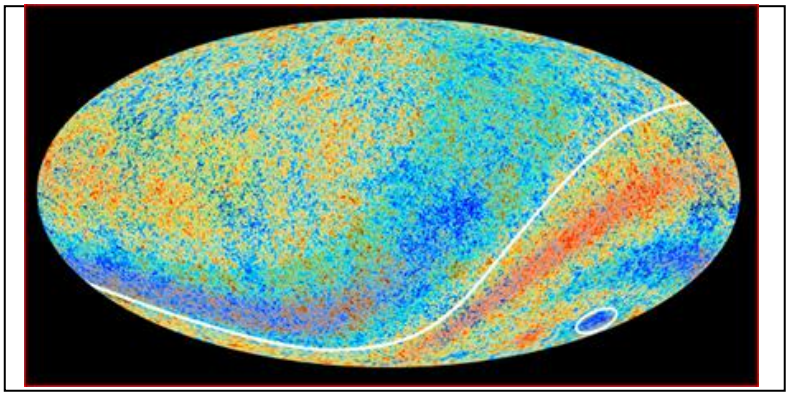
The microwave background radiation - CMB.
Redshift and CMB are used today as one of the most important proofs that the Big Bang took place 13-14 billion years ago. Both are described in detail in Wikipedia.

One can thus provide a coherent explanation of how the evolution proceeded in the very first fractions of seconds after the Big Bang and the next 3-400 thousand years, until the expansion and cooling to about 3000 degrees allowed the light to escape from the original opaque plasma. It is the redshifted remnants of the radiation from these 3000 degrees that are perceived as CMB.
The individual CMB-photons have an energy content of approximately 0.00166 eV (measured upon arrival on Earth). This corresponds very precisely to the gauss-distributed heat radiation from a 2.7226-degree Kelvin hot, black body.

What puzzles me is, that the measurement of the redshifted radiation from the 3000 degrees is just so accurate. Where are the displaced remnants of the radiation that must have emanated from the moments right after the release of the light when the Big Bang temperature had cooled below 3000 degrees, i.e. 2999 or 2998 etc…?

However, a measurement of the entire CMB – most accurately of the Planck mission – over the entire firmament shows small but clear deviations in temperature.
Partly on the basis of data from this and previous missions, detailed and far-reaching calculations have been made of the age and composition of the universe. (13.8 billion years and about 5% ordinary matter, 25% dark matter and about 70% dark energy) These calculations will be meaningless if my explanation of CMB is correct.

The deviations are explained by the fact that there were already irregularities in the original plasma, which are then the basis for the formation of galaxies etc. But it is not explained why and how these "irregularities" occurred in the uniform plasma.



Nor is there any explanation given that the irregularities in CBM suggest a structure that is different in the two celestial hemispheres.
This does not correspond to the fact that the distribution of galaxies is uniform throughout the universe.

In the picture, which shows Planck's measurement of the irregularities, the ecliptica is drawn as a white line.

But if the Big Bang does not exist, there must be another explanation for CMB
My own proposal for the actual formation of CMB is the following:
As described earlier, in empty space, numerically equal, but very small, units of positive and negative energy can be formed. The formation occurs reversibly, and the law of conservation of energy is observed. The nature of these devices is of course not yet known, as has been mentioned. In the foregoing, I have called them "gravitons". I believe that at the time of formation the units must be thought of as particles without velocity (the temperature is zero degrees K), and I believe that their energy content is 0.00166 eV. But that the formation of these particles by our instruments is perceived and measured as radiation with similar energy and wavelength – that is, as CMB.

Since the particles/photons probably quickly either annihilate or form part of larger units, their lifespan is short. We therefore only measure particles within a relatively limited distance from the measuring instrument.

I believe that these particles - despite their very small size - nevertheless have a gravitational field that attracts other particles of the same species. And over time, larger and larger clumps of immensely concentrated "matter" will form—a kind of black husk clay.

When the primary particles agglomerate with other similar particles, our measuring instruments can no longer perceive them as radiation. They have become "dark matter", which can only be recognized by its gravitational effect on light and visible matter. However, if this clumping is controlled by the same gravitational forces that control the distribution of galaxy clusters in the universe, dark matter will be distributed in similar fractal structures.

And if these structures affect CMB, it may explain the anomalies measured by Planck.
In fact, researchers from the Niels Bohr Institute have observed such a free-floating black hole in our Milky Way. And scientists believe there may be many more such objects in our Milky Way.

I recognize that this explanation of CMB is extremely primitive and flawed and that it certainly will be challenged. However even if it is incorrect, it will not affect my assertion of the universe's continuous formation out of equal parts positive and negative matter.

The Big Bang is still a monstrosity, and it must be up to my critics to find a better explanation for CMB.

And if my whole explanation is nonsense, the "Big Bangers" still owe a better answer to my questions:

- Where does all the mass come from?
- Why is the universe expanding at accelerating speed?
- What is the dark matter?
- What is the dark energy?
- What is gravity?