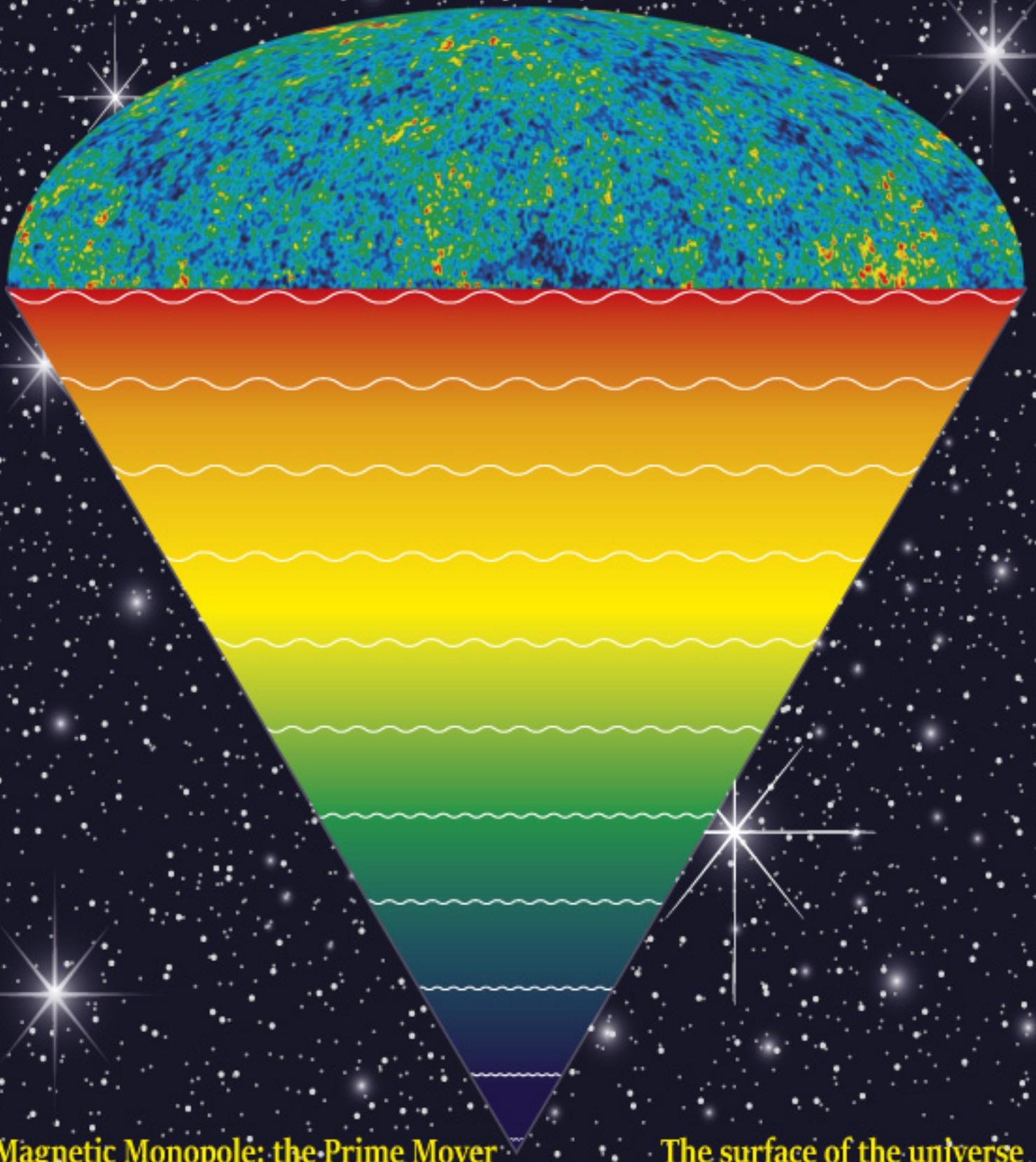


# THE GOLDEN CENTURY

- Science and Scientists -

year I - N. 4



**Magnetic Monopole: the Prime Mover**

**The surface of the universe**

## Preface

I shall say at once that the cover introduces a visual presentation of the *surface of the universe*. One can well see the underlying sub-dimensions as well as the surface of the universe which in my work I called: the time and/or space fully expanded dimension. In addition, as I have already stated in the text, the transition from the microworld to the macroworld takes place on the 1 millimetre wavelength which corresponds to the blue end of microwaves. I am also pointing out that what we see on the cover may be applicable to a single electromagnetic point-source or, if we want, we can by cosmological extrapolation extend the physical concept to the entire universe which contains infinitely many small electromagnetic point-sources and retaining the same dynamics of a single point-source. For the reader who has just joined in, this is my fifth essay. All the others may be seen at [www.idato.it](http://www.idato.it) (magazines).

In this essay I did want to put heavily the accent on the surface of the universe. I presented in its entirety something really new. In both my arguments, the attentive reader has found some food for thought and a stimulus towards a reasoning logically smoother and more mathematically articulated of what he obtains from the current scientific thought sustained and guided by relativity and quantum mechanics.

If we make a mental effort to accept my three axioms, how can we then accept our physical laws, which being symmetric with respect to time, do not make any difference between past, present, and future? We have, from one side: time without directional arrow demanded by our physical laws, and from the other, a truth that does not want to go and it cannot escape our eyes. We cannot ignore empirical data, we cannot put aside, as though they never existed, chemical oscillators or space structures to name just two. The irreversible processes must have a constructive role in science and this means, as I have asserted in other forums and as I have asserted right here, that we have to disclaim the present laws of physics.

The followers of this physics, including of course a few philosophers of science, go from those who want to reduce time, as promoted by Einstein's relativity, to an illusion, to those who are trying to put some order in the disorder, which is becoming with the passing of the years more preponderant, and that have even invented a "theory of chaos". Neither the ones nor the others come to realize that time and space are created by the same matrix, are created by one and the same electromagnetic process and propose: the first ones theories to spatialize time, and the others theories to temporalize space.

Science proposed and is proposing different models that have had and have temporariness in common; partial and limited models offering nothing solid enough to hang on to. Against this background made of ordinary blades of grass, I offer my work and my theory which should, by definition, be the ultimate theory. A theory able and capable to answer all the questions that wise men of all epochs put to themselves; a theory that does not accept tales of any kind.

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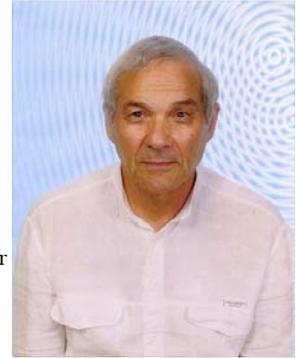
February the 27<sup>th</sup> 2018

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## Magnetic Monopole: the Prime Mover

### *Foreword*

The following three fundamental axioms are the foundation pillars upon which the proposition herein put forward rests.

- I. Time and space are physically created by an electromagnetic process of temporal expansion and/or spatial extension to be identified with the existing electromagnetic spectrum.
- II. Time and space have their origin in each and every electromagnetic pointlike point-source in free (optical) space as well as in matter.
- III. Given (I) and (II), it follows that the speed at which time and space are created: (a) is the upper limit and dictates the physical laws in the world we live in (fully expanded time dimension), and (b) it is a function of linear and nonlinear motion in free (optical) space.

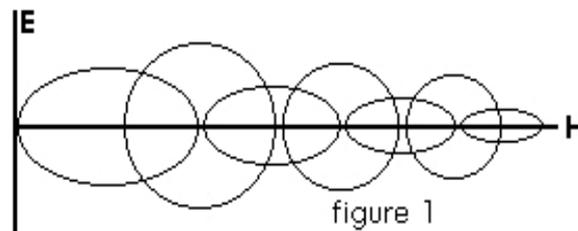
In particular, axiom (II) implies that space is permeated by an all-pervasive and permanent substance which I shall herein label *time-fabric*, meaning to say: a permanent non-zero source of energy. From this we may deduce that space is filled by pointlike point-sources which are magnetized by the finite and uniform speed of the expansion and/or extension. These point-sources during their decaying process form all lengths of time and all lengths of space. These lengths are the effective volume containing energy. The entire free (optical) space is, therefore, a universal unsaturated sink with continuous absorption because of the finite and uniform speed of expansion and/or extension.

### *Argument*

Throughout my work, I have sustained that the creation of time and/or space is caused by a magnetic monopole generated by the finite and uniform speed of the expansion of the universe. It is indeed this finite and uniform speed of the expansion that causes each and every infinitely small pointlike point-source in free (optical) space to magnetize and thereafter to initialize the interaction of electric and magnetic forces and fields. These magnetized points give origin to electromagnetic pointlike point-sources which during their decaying process generate lengths in-between the crests of adjacent waves. These lengths become asymptotically long (longer and longer) as the vibrations of the waves lessen and when the vibrations die out mother nature has completed a wholly expanded length of time and/or space. The waves, as a given fact, must have a different physical structure at any given energy step of the expansion and/or extension.

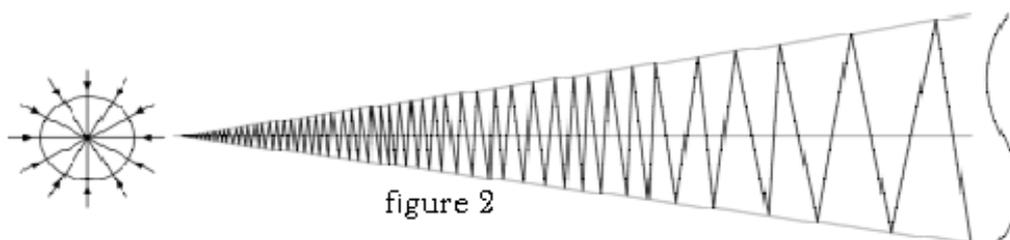
My assertion is supported by the very strong magnetic component and by the very weak electric component we observe at the beginning of the process (high frequency oscillations) and conversely by the very weak magnetic component and very strong electric component we observe at the opposite end (low frequency oscillations). The magnetic component would, therefore, lose

its strength, as the oscillating frequency becomes lower. When the frequency becomes very low; that is, the cycles are fewer at each instant of time, the electric component becomes the stronger of the two. From this continuous loss of magnetic strength, one may conclude that the finite speed of 299 million 792 thousands 458 cycles and/or metres per second of electromagnetic radiations is due to the inability, at the end of the expansion and/or extension, of the already weak magnetic component to generate a further electric component.



I have recalled here a geometrical representation to show first of all the field vector phasors  $\mathbf{E}$  and  $\mathbf{H}$  which are respectively the wave's electric and magnetic components, and then to put in evidence that magnetic fields have no spherical symmetry. As we can see from figure 1, there is an expanding and/or extending process initialized and terminated by the same magnetic component. This is confirmed by the magnetic nature of the world we live in. If the electric component were primary, as our physical laws demand, the universe would have to have an electric nature; in which case I would not have been here, in this ball of fire, to profess my reasoning and you would not have been here either to contest it.

I would now like to make a distinction in kind between what I called magnetic monopole which I wanted to highlight with the subtitle *prime mover* which is, and we can define it to be, the point-source proper from one side and from the other the well known electromagnetic spectrum with its subtitle *driving force* circumscribing the expansion in time and/or the extension in space.



I have just jotted down a sketch of how I mentally see the physical process of creation which in my work I have also called *The time and/or space processor*. As it can be seen in figure 2, the process is subdivided in three sections. The first part is the magnetic monopole which strictly speaking is the pointlike point-source. The second section is the process itself which during the creative phase it establishes a nonlinear field characterized by ascending wavelengths and descending energy levels. A field in expansion and/or extension which is indeed the electromagnetic radiations' nonlinear conformation not yet completed. The third section is instead showing an adynamic undulated magnetic line as a result of just a single process of creation lasting one second of time. This magnetic undulated line is the only thing left after the 300 million vibrations in expansion and/or extension have halved themselves at each descending energy level.

As for the second section, or better still, the central section represented by the electromagnetic spectrum proper, we must imagine it in a perennial phase of creation. The magnetic charge taken at the origin by the magnetic monopole has the function of supplying the necessary energy for

the lengthening of the wavelengths, of all wavelengths. From cosmic rays whose wavelengths are very small indeed up to cerebral waves whose wavelengths go from 7 million 500 thousand metres (the shortest) to 150 million metres given by the last cerebral delta wave. The process of creation comes to an end with an adynamic magnetic undulated line long 299 million 792 thousand 458 metres which is being added to the spatial extension of the universe. Further, since the process of creation is outdistanced from the one coming before and/or after by Planck's distance, we may consider the microworld as well as the macroworld perennially occupied by electromagnetic radiations. The microworld all taken with high energies descending levels (from cosmic rays to infrared rays and the beginning of microwaves) and the macroworld all taken with low energies descending levels (from microwaves to cerebral waves).

I am sorry, rather I am asking to be forgiven if things seem to be complicated. To justify myself, I can only say that I am not trying to explain how works a motorcar assembly line. Here, I am saying of how time and space are being created, how electromagnetic radiations are being created, how their filaments, the inner structure of free (optical) space itself, are being created. I am stating that the universe is regenerating itself at each second of time. Even Aristotle who lived in a simple and happy era, when in his book of physics he wrote and I quote: *time is therefore either a process or is somehow dependent upon a process; and since it is not the former, it must be the latter* unquote, even him thought the process must be something rather complicated.

Just as a piece of information: it is my opinion that cosmic rays and cerebral waves belong to the electromagnetic radiations' family even if their electromagnetic displacement, obviously due to the two opposite ends of the electromagnetic spectrum, give the impression that they have a different inner structure from the rest of the family.

I shall now make some basic considerations to help me follow the pathway which from the monopole's starting springboard comes to an end with very long waves (delta brain waves falling within 0,5 and 4 cycles per second or Hertz). The conditions in being are:

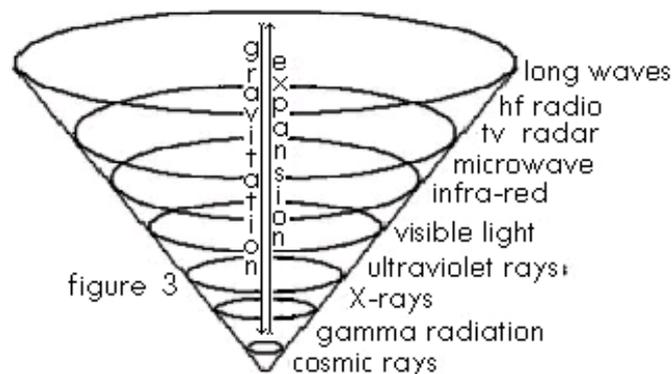
- ① Empirical evidence shows that uniform motion in free (optical) space magnetizes all bodies mass-carrying and non.
- ② The physicist experimentalist Max Planck's linear distance, confirmed to have the value of  $1.616 \times 10^{-35}$  metres it implies the existence of pointlike limits, no matter how small they may be.
- ③ The American astronomer Edwin Hubble in studying the Cepheids (variable stars), in 1929 did establish that the universe is expanding.

Making treasure of my own considerations, I have come to the inevitable conclusion that what is known as *the gradation scale* of electromagnetic radiations is the driving force that bears the weight of universal expansion. I recall now the magnetic monopole which is the prime mover of a chain of events repeating themselves from time immemorial.

- ① Free (optical) space is made of infinitely many pointlike limits due to the existence of Planck's distance.
- ② The pointlike limits are magnetized by the finite and uniform speed of the expansion of the universe and become magnetic monopoles.
- ③ The magnetic monopole (the prime mover) at the instant of its creation induces an electric field which in turn, and in obedience to Faraday's law, gives body to a chain of reciprocal electric and magnetic induction.
- ④ The electromagnetic induction gives body to the entire range of electromagnetic radiations represented by the electromagnetic spectrum (the driving force). The entire range of

radiations is created at each and every second of time and it must be thought of as being in a perennial stage of creation.

- ⑤ At each inductive exchange between electric and magnetic forces and fields, the energy taken at the point-source by the monopole halves itself and it is spent for the lengthening of the radiations' wavelengths whose gradation scale is in the process of being created.
- ⑥ On reaching the 1 millimetre wavelength (the blu end of microwaves), the process of creation leaves the microworld to surface in the fully expanded world (our world) and here it leaves the indelible mark of its own passage covering as a snow mantle the whole of the surface of the universe.
- ⑦ The electromagnetic chain induction reaches its completeness with an adynamic magnetic ondulated line 300 million metres long which is its own contribution to the expansion of the universe.



To enrich the mental picture that we all have come to form, I shall now elaborate a bit further and give a more extended meaning to some aspects in the above mentioned chain of events.

- I Since electromagnetic radiations fill up the whole of free (optical) space ④ that there is in the universe and their gradation scale (the electromagnetic spectrum) has the function of expanding in time and extending in space and thereafter contribute to the universal expansion, I must point out that the latter belongs to the nonlinear field, while radiations, when taken singularly, are orthogonal to the expansion and as such they belong to the linear field, see figure 3 above.
- II Event ⑤ spells out quite clearly that electromagnetic radiations are created today in the same way that they were created at the dawn of time. My statement finds support in the simple fact that electromagnetic radiations are mass-less filaments giving body to the inner structure of space, being it during its creation or fully expanded. They are billions of years antecedent to the atom, to the nucleus, and to the particle. They are antecedent to intergalactic dust and to whatever form of nebulae. They possess a finite and uniform speed and dictate the physical laws in the microworld and in the macroworld.
- III The presence of microwaves covering wholly the universe surface ⑥ is a tangible proof of the existence of a microworld network (the driving force) creating electromagnetic radiations, creating time and space, and creating the outwards push for the expansion of the universe.
- IV The adynamic magnetic ondulated line of ⑦ did not have the strength to induce a further electric field since, we may conjecture, the magnetic charge taken at the point-source from the monopole was spent during the physical process which has created with that charge a unit measure of time and/or space.

V Electromagnetic radiations (wavelengths from 1 millimetre upwards) may be considered as being part of the fully expanded world (our world) this frequency range includes microwaves (from 1 millimetre to 30 centimetres) and all radio waves (short, medium, and long). To the aforesaid natural electromagnetic fields, were added, during the industrial revolution, some artificial ones born within the scientific and technological development. There are also electromagnetic fields at low and very low frequencies (100 - 60 - 50 Hertz) industrial and domestic electricity and finally brain waves (from 0,5 to 40 Hertz). The physical process of creation, as already mentioned, comes to an end with an adynamic magnetic ondulated line long  $3 \times 10^8$  metres which is being added to the spatial extension of the universe.

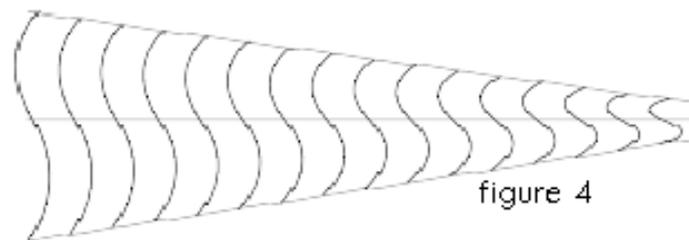


Figure 4 represents a train of adynamic magnetic ondulated lines moving out with direction and orientation along a spatial axis obeying the inverse square law. Well, the microworld and the macroworld are the natural and exclusive habitat of electromagnetic radiations which give body to the physical process of creation which in turn it has the task: (i) to lengthen all wavelengths from the beginning to the end of the gradation scale of electromagnetic radiations, (ii) to create physically time and space, and (iii) to push outward and thus contribute to the expansion of the universe. Electromagnetic radiations are very small radiative mass-less filaments whose growth is orchestrated by the physical process of creation which is a process in progress today as it was at the dawn of time.

### *Conclusion*

To conclude, the physical creation of time and/or space must, by logical and mathematical necessity, include what I could call the incomprehensible small and the incomprehensible big. Time and space are the sole components of the universe, before and/or after them there is only the void, nothingness, the vacuum. This is the reason why I started from Planck's distance to reach the *great domain* under whose shadow abides also our visible universe.

Well, seen the speed, the precision, the determination, the persistence and resistance, seen the operative design, seen the *silent continuity or quantum jump* shown by empirical evidence, one has the impression that the filament used today to create Planck's distance is the same filament used to create the adynamic magnetic ondulated line in the mists of time. In addition, if the filaments of electromagnetic radiations are created at a finite and uniform speed and this is beyond any doubt, if they are mass-less as they actually are, and if they are antecedents to matter, then we are talking about free (optical) space. We are saying that electromagnetic radiations made of filaments are nothing else but space in its most pristine form imaginable. The same space within which Henry Cavendish with his constant of universal gravitation established over two hundred years ago that two mass-less point-sources run away from each other at a composite velocity of  $6.67 \times 10^{-9}$  metres per second, each contributing a velocity of  $3.335 \times 10^{-9}$  metres per second and each contributing to the repulsion of each other, or to the space extension existing in-between. The velocity of  $3.335 \times 10^{-9}$  corresponds to the slope  $1/c$  where "c" is the speed of

light. I may also say and I will say: the same space the guy of the big bang made use of although he did not know much about electromagnetic radiations and finite and uniform speed; and since he was also in a hurry, he thought to use an accelerated redshift outrageously unique in its kind (from cosmic rays to microwaves) and to spend only 40 seconds to create something that by electromagnetic radiations standards had to have a radius of 15 billion light-years and a matter density ready to be eligible for the formation of billions and billions of galaxies each of which populated by a billion stars. The whole in exactly 40 seconds of a clock. Good on him who was lucky enough to find a cheering audience.

To stay on course, I would like to continue with an assertion. The magnetic monopole (the prime mover) with its magnetic charge, the electromagnetic spectrum (the driving force) in the nonlinear conformation of electromagnetic radiations, and the adynamic magnetic undulated line: three in one. Figure 2 represents an inseparable physical process of creation. This is the identity card of the universe, this is its signature. The universe is dynamic and it moves with this speed, the universe is dynamic and regenerates itself at this speed.

Before closing, I shall recall to memory that if the universe is expanding as it appears to be, then only electromagnetic radiations in their nonlinear conformation can supply the necessary energy. Only electromagnetic radiations occupying the whole of free (optical) universal space can expand this balloon whose circumference seen along billions and billions of light-years it is shown to be almost a straight line. It does not exist and nature does not offer any other type of energy so equally distributed that meets the requirements. These are: ① starting point the bowels of the universe (Planck's distance) to circumscribe the whole, ② energy pushing outwards (negative) available locally on the entire universal surface to guarantee a uniform and constant expansion, ③ magnetic charge to trigger the electromagnetic induction, ④ high energies for the lengthening of wavelengths along the physical process of creation, ⑤ low energies to surface in the fully expanded time dimension (our world) without causing any damage, ⑥ adynamic magnetic undulated line, (i) to contribute to the expansion of the universe, and (ii) to complete the physical process in the macroworld.

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### I

Here I stand and there I move  
Running counter once or twice  
Looking at science playing dice  
Trying to find just its groove

### II

Science today is still on the run  
Moving steady along the road  
Lacking as ever a scientific load  
Playing it along and just for fun

### III

Fights a girl for my filaments  
Putting it all into her fights  
When she kicks and when she bites  
When using her selling moments

### IV

It goes my work as a beginner  
Standing now in the blush of dawn  
With too many nights all gone  
Playing hard and looking a winner

... O ...

11<sup>th</sup> October 2018

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## The surface of the universe

### *Foreword*

In this new work of mine I shall lay an orderly and scientifically consistent presentation of the argument that I am about to begin. If my readers will follow me with an open mind, then; we all shall see mother nature not in abstract and subjective terms, but on the empirical and objective evidence requested by an open mental reasoning.

Once assimilated with diligence and great care the mental picture of what truly is the surface of the universe, when we shall realize, beyond the indeterminate and the vague, of how electromagnetic radiations work, the problem is soon solved. And the validity of the theory herein advocated will be understood and approved with the same determinate certainty with which it is approved a theorem of elementary geometry, who does not recognize the truth of which he has lost his mind.

In addition to the above, and in presenting an all new universal surface, the oncoming argument shall explain to clarify once and for all the clear/dark patches seen on the surface of the universe, and it shall explain to inform what was brought to a good end and in good faith by the fathers of quantum mechanics.

### *Argument*

I shall begin this all-important argument trying to formulate a mental picture of what we all call *the surface of the universe*. How does the reader see one such surface? It shouldn't have, of course, nothing in common with the surface of the sea or that of an extended lowland, with a hilly surface or a mountainous one. On the other hand if instead of being terrestrial we were spatial; where is the universal surface: under us, over us, or along the sides?

Nature, we may well say, holds in its bowels what science calls electromagnetic radiations which in their nonlinear conformation may be and are represented by the electromagnetic spectrum. In partaking it, we must make the premise that the subdivision of the spectrum into various types of radiations is an enhancement brought about by man to handle better a much too big quantity of radiations, while radiations in their nonlinear conformation as a whole were put there by mother nature with the precise task of lengthening the wavelengths of time and/or space and to continue pushing outwards to give thus existence to the universe which from static and dying became dynamic and everlasting.

To be able to define with a reasonable precision and in a scientifically acceptable way the surface of the universe, I shall first formally assure the reader that electromagnetic radiations exist in nature and fully satisfy the conditions imposed by the electromagnetic process described in the argument "Magnetic Monopole: the Prime Mover" just terminated, and at the same time present them as the only possible source of radiative energy in the linear field and creative energy in the nonlinear field.

Well, electromagnetic radiations exist in nature and are trackable at any time and in any space. Let us see if it is so. The middle band of electromagnetic radiations was without any doubt the first to be used. I shall explain. The linear conformation of electromagnetic radiations, in particular the visible spectrum where electric forces and fields and magnetic forces and fields reach their maximum equilibrium was used millions of years ago. It was used by life itself or living substance in all its forms which discovered, by the very simple evolutive process of trial and error, a safe and harmless window through which it moved from darkness into glory.

Conjectures apart, the prediction of the existence of electromagnetic waves (visible light and visible infrared), belongs to the scottish mathematician James Clerk Maxwell with his famous 1864 equations. The demonstration of their existence was carried out in 1888 by the German physicist Heinrich Rudolf Hertz who studied radio waves and macrowaves. The high energy range was used instead by the German physicist Wilhelm Roentgen who in 1895 discovered the existence of what he called X-rays; meaning with that X something unknown of electromagnetic nature. So much unknown that in his first experiments, and to show to meddlers his own bones in the printed radiographic plates, he almost cooked his own arms and legs. A summary rather concise of Maxwell's radiative field or of what I call linear field.

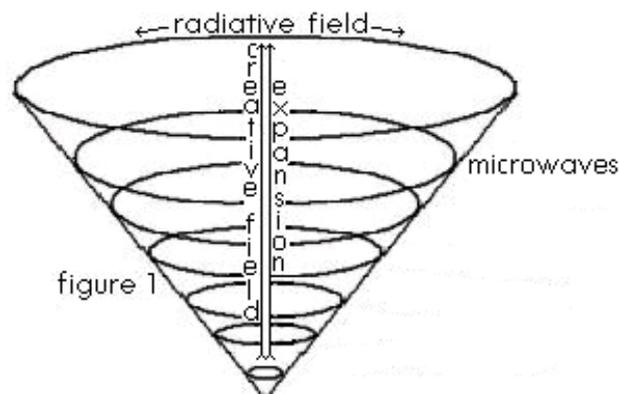
I have proved that in this very planet of the solar system called Earth exist in time and in space electromagnetic radiations at low, medium, and high energies. Let us now see if it is also the same in other times and in other places of our universe. At the beginning of astronomical observations and for many years afterwards to observe and to study stars and galaxies was used the visible spectrum. Nowadays things are not so. Let us see why. Infrared radiation discovered by William Herschel extends itself from visible light to 1 millimetre wavelength covering thus the full range of the infrared which is very wide and it is subdivided into two bands: one between 350 micron and 1 millimetre and the other between 0.7 and 350 micron (infrared proper) which is subdivided into another three sub-bands: infrared near, medium, and far. Still below visible light there are microwaves and radio waves. The range of microwaves radiations lay between 10 centimetre wavelength (3 GHz) and 1 millimetre wavelength (300 GHz), a wide band which has been object of studies and applications. For example, the American engineer Percy Le Baron Spencer became famous as the inventor of the microwave oven. Radio waves instead cover the wavelengths from 10 centimetres to 10 kilometres (3 GHz to 30 kHz).

In the astronomy of radio waves, nowadays known as radioastronomy, the waves are much too long and for this reason the resolution of the received signal is not a good one. To improve the resolution are needed many more waves, that is; are needed much larger radio antennas. For this very reason was born the *interferometry*, a system of many radio telescopes operating in conjunction. This way, the longer distance between two of the telescopes of the system becomes the receiving antenna for each participating telescope. Radioastronomy led to the discovery of new types of celestial bodies such as pulsars and quasars. Italy participates to radioastronomy with the radiosopic station of Medicina (Bo) and with the Sardinia Radio Telescope of San Basilio (Ca). Some names that have contributed to the development of low energies are: Nikola Tesla, Guglielmo Marconi, Samuel Morse, Sir William Thomson known as Lord Kelvin, Oliver Heaviside, Lord Rayleigh, Oliver Lodge. Nello Carrara, physicist and scholar at the Naval Academy of Livorno has coined in 1932 the scientific name *microonde* in English microwaves.

Let us now see the high energies. Gamma radiation is included by the frequencies going from 300 EHz up, corresponding to wavelengths inferior to 1 picometre. Gamma rays exist because of the existence of cosmic rays interacting with matter and with photons less energetic, and also

with magnetic fields present in the galactic space. Gamma radiation coming from a celestial body is not tied to the movement of electrons, but to processes of radioactive decay and it indicates the part most energetically violent of the universe. There are also X-rays which apart from being employed in medical diagnostics (radiography), are used to observe celestial bodies, and there are of course the ultraviolet rays to observe the universe in ultraviolet.

As for the creative energy (nonlinear field), we must first of all keep in mind that electromagnetic radiations woven as a whole all over the universe do not represent a static electromagnetic network, the network cannot be static, it couldn't have survived. The energy that characterizes it (radiative energy in the linear field and creative energy in the nonlinear field) must renew itself and it renew itself at each second of time. If weren't so, the energy would have been used up billions and billions of years ago. We must then give for granted that the quantitative scale of electromagnetic radiations is whole; that is to say, there isn't a cut or a separation in-between one range of frequencies and another. In brief, all energetic levels (sub-dimensions and fully expanded dimension) are tied up one another. From the closely spaced frequencies at the vertex of the cone up to those widely spaced that lodge at the base of the cone, conversely, from the extremely short wavelengths at the vertex of the cone up to those very long we find at the base of cone there aren't interruptions, the network is in its entirety a structure assembling the full scale of electromagnetic radiations, and it is made solely and exclusively with mass-less filaments.



Well then, electromagnetic radiations as a whole exist in nature for real and its filaments out-distanced by a very small separation measured by Planck, have occupied and occupy in time and in space the whole of the universe. In addition, while the radiative or linear field may be considered secondary, the one which is of paramount importance is the creative or nonlinear field. It is indeed the energy of this field that has the task of lengthening the wavelengths of time and space, surface with a wavelength of 1 millimetre in the fully expanded dimension (our world), and here leave the indelible mark of its passage covering as a snow mantle all the surface of the universe, to participate thereafter as an adynamic electromagnetic undulated line to the expansion of the universe. Ergo, electromagnetic radions leave the microworld to surface in the macroworld on the 1 millimetre wavelength, that is: on the blu end of microwaves. In the formulation of my scientific theory, I have taken the liberty of electing the said wavelength as a mental separation in-between the sub-dimensions of time and space on one side and the fully expanded dimension (our world) on the other. That is, I took the trouble of giving body to the *universal surface*, I gave to the surface of the universe a physical structure woven with electromagnetic filaments. Furthermore, a component that helps to understand how it is made the universe is that of assimi-

lating the idea that the wavelength portrays the physical structure of time while the frequency portrays the physical structure of space.

In all my work I oftentimes said that the *observer* is the apex, the centre, and the limit of the universe. He is the apex since in whatever direction he looks, time falls towards the past, he is the centre since in whatever direction he looks, the horizon is always at the same distance from him, he is the limit since after him it does not exist anything, he is the closest thing to the future, but he is in the present; the *after* from the point of view of an observer hasn't been created yet, it is, and it always remains, in phase of creation. This last assertion springs from my second axiom which reads: *Time and space have their origin in each and every electromagnetic point-source in free space as well as in matter; or to put it differently: time and space are created everywhere and everywhen.*

I am now in a position to draw some conclusions. The human race and a variety of living beings in our planet have the privilege of moving about in what I have repeatedly called the time and/or space fully expanded dimension (our world), that is: within the wavelengths going from 1 millimetre up to 299 million 792 thousand 458 metres timewise and within the frequencies going from 300 Giga Hertz (300 thousand million cycles per second) down to 1 Hertz (1 cycle per second) spacewise. The whole thing is, strictly speaking, *the surface of the universe*, the world of the observer (our world). As, for example, the world of the electron is a sub-dimension positioned at  $10^{-12}$  of a second =  $10^{-4}$  of a metre; that is, the unit measure of time for the electron would be 1 millionth millionth of a second time-wise and one tenth of 1 millimetre space-wise. As a matter of fact, I wouldn't know whether the electron occupies more than a single frequency the way radio and television channels do that in order to strengthen the emitted signal it is used a wider frequency band and their corresponding wavelengths.

Back on course, a while ago I asserted that human beings have a reasonable freedom of action in their world. From here they may also have access to all sub-dimensions. They cannot physically move about, but they can *navigate* in the wavelengths going from 1 millimetre down to 1 picometre (one billionth of a metre). When one occupies the universal surface, if he opens his eyes, even if he is outside of the planet, he can open a window on any frequency to observe or make contact with any other point within the full scale of electromagnetic radiations. One who occupies the universal surface can have immediate access to the whole electromagnetic network since he is the apex, the centre, and the limit of the universe. A privilege given to him by the second axiom of the theory here professed, a privilege reserved to all intelligent and mentally mature beings and to all mechanical equipment made to the human intellect scale occupying the time and/or space fully expanded dimension of the universe.

Underneath this dimension exist the time and/or space sub-dimensions which I have identified with electromagnetic radiations. I can then deduce, without fear of being mistaken, that these sub-dimensions are populated by something that science calls *atomic or sub-atomic particles*. Since the physical structure of radiations is made with electromagnetic filaments which are closely spaced at one end and widely spaced at the opposite end of the spectrum, a good experimentalist should be able to tell whether or not a particle of a given sub-dimension has the privilege of moving about along a given number of sub-dimensions. In addition, the human race and the other living beings when leave the fully expanded dimension (our world), not necessarily by their own will, cease from existing. In the same manner, the filaments making up the physical structure of electromagnetic radiations when are being excited by an incident light curl, contract, leave the *spatial world* breaking away from the electromagnetic network, and become a particle with

its proper mass which materializes in the *temporal world* while heading towards the incident light. The particle, in leaving its dimension, as the human race and the other leaving beings in their dimension, ceases from existing by annihilation.

### *Interlude*

The American astronomer Edwin Hubble in 1929 with his astronomical discoveries established a ratio between velocity and distance of those few galaxies which were known at the time. Hubble's contribution was to say that the recession velocity of galaxies is directly proportional to their distance. Hubble had pointed out that almost all galaxies were receding and that the velocity of recession was increasing with their distance from Earth in accordance to the relation:

$$v = H_0 \cdot d$$

where "v" is the velocity of recession of the galaxy in the direction of our line of sight, "H<sub>0</sub>" is Hubble's constant, and "d" the distance of the galaxy from Earth. This is not obviously about a privileged position of the Earth; it is the whole space extending and dragging the galaxy. The same phenomenon would appear to any other observer, wherever he may be.

Considering the fact that only two years before the priest cosmologist George Lemaître had more or less published the same thing, Hubble's discovery made at the time, among the scientists, more noises than necessary. A good number of them rushed in with diligence to search for the energy needed for one such expansion. The quantity and the quality was such that each one of them, and without realizing it, forgot about the expansion of the universe to go back to his own field of research. And that is how was born a new generation of scientists gone down in history as the fathers of quantum mechanics. I am talking about Bohr, with his complementarity, forefather of them all, of Heisenberg with his uncertainty principle, of De Broglie with his wave-particle duality, of Planck with his zero-point field, of Einstein with his negative energy, of Bohm with his sub-quantum level, of Schrödinger with his alive or dead cat, of Dirac with his sea of negative energy, of Pauli with his exclusion principle. All of them great men of science who pursued during their life, without locating it, the negative energy which was there and it is still there at hands reach. Moreover, being unable to identify all the energy around them, not knowing where it was coming from, what was doing there, how long it would have lasted, and when it would have disappeared, each one of them with his own talent and in his specialization tried to get by in the shadow of indetermination, of probability, of complementarity, of chance event, of the duality and all the rest. Each one of them contributed to the evolution of science with his principle, postulate, axiom, statement and all the rest; each one of them contributed with his brick to the construction of quantum mechanics which, to be noted, is currently taking the human race to higher and higher technological levels. This is my own *supposition* although matured through the reading on the argument of a bit less than a hundred books.

One of these young scientists, of particular interest to this essay of mine, was Georgij Antonovic Gamov born at Odessa (Ukraine). Naturalized American citizen with the name George Gamow, he was one of the few scientists back in 1948 to realize that electromagnetic radiations were leaving the microworld to enter the macroworld on the blue end of the microwave band of frequencies. At the time it was fashionable what from 1949 onwards came to be called *big bang*; and for Gamow himself it was natural enough to associate the microwaves to the big bang; also because already in 1940 he proclaimed himself a strong supporter of the big bang so much talked about in scientific circles. Also for me, then, as faraway as I am from the incongruous big bang, it is natural enough to associate microwaves to the wavelength of 1 millimetre (the blue end of

microwaves) which is the energy level where the process for the physical creation of time and/or space leaves the microworld to surface into the macroworld to occupy the lower level, we may also say, the base level of the whole universal free (optical) space. This is the microwaves' state in being. Only this version of the facts can explain, and explain with clarity, the presence of microwaves on the universal surface. A more truthful presence, closer to nature; better still: a presence more scientifically and mathematically articulated.

To think of breaking up such a process, take the sections we need, go back in time and once there select the background most suitable and reconstruct a new scenario our fantasy had already idealized in its details, it is beautiful, very beautiful. There is an obstacle, an obstacle never taken into consideration. Electromagnetic radiations are antecedent to the big bang or any other contraption. Electromagnetic radiations in their nonlinear conformation were necessary to change the universe from static to dynamic, to make it self-sufficient, and thus create a regenerative process. A process maintaining today all the characteristics that had in the mists of time, that is: the same reciprocal electromagnetic induction, same frequency and same wavelength, same amplitude and same phase; and more important still, the same finite and uniform velocity of propagation. Moreover, the finite and uniform velocity is confirmed by the fact that the process of creation surfaces today and it had always surfaced in the fully expanded dimension (our world) in the 1 millimetre wavelength and this precision ① excludes any uncertainty and ② it clearly tells that the process is common in the whole universe: a physical process of creation local, for local consumption.

### *Conclusion*

In the very course of its existence, science with its own laws was never incomplete; alive and incomplete yes, but never incomplete. Alive because its laws represent the theories of its scientists, hence: an ever changing truth. No man of science worthy of this group identity should be frightened "to retire" a falsified theory. Its creator will always remain among the greatest men of science as did Claudio Tolomeo with his *almagesto* and as did remain Albert Einstein with all his mistakes. Ergo the time is ripe to put to rest the uncertainty principle and the wave-particle duality governing an otherwise controversial yes, but very productive scientific theory. The time is ripe to come out from the indefinite, from the vague, from the indeterminate and operate in daylight in a world moving, and it always did, with a determinate, unbelievable precision. In a world where the inherited traits pass from grandfather to grandson with one such look-like similarity nothing short of miraculous. In a world whose electromagnetic radiations as a driving force are pushing outwards today with finite and uniform velocity and it did push outwards in the mists of time with the very same velocity. A finite velocity maintained for billions and billions of years. A uniform push in the bowels of a universe so big whose circumference is almost a straight line. Self-evident truths before which it is forbidden to speak of uncertainties and/or probabilities. It cannot be done.

Our universe, irrespective of its enormous size, moves and it has always moved with a precision which can never be achieved by high precision atomic watches. Watches, to be noted, made to mark time, and born and raised among the electromagnetic filaments of radiations, in the bowels of their creator.

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