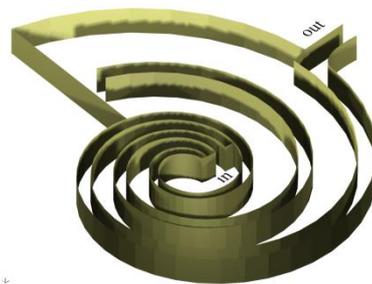


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EX SPIRA AQUA MUNDA  
**In memory of my son Giovanni**

23-March-2020



To my wife **FRANCESCA**

and my daughter **AMANDA**

## Part 1

# Theory of Existence of the Ether/ESF

(Consolidation of the value of Basic Mass in the Universal Dynamic Science)

This paper concerns presentation of the Basic Mass  $[BM]$  or Base Particle of reference in  $[Ether/ESF]$ , as substance composed of two phases ( $[E_{ESF}]$  and  $[ESF]$ ) coexisting in the Euclidean Space with the gravitational mass  $M(\rho, R)$  and illustrates its contribution to the development of the physical phenomena.

This latest development focuses on the study of status of existence of the Natural World and is the result of my continuous effort, which was inspired at all times by my Faith on the Maker of all Things.

Science needs proofs and the conclusions reached (based on observation and deductions of phenomena of the Natural World) need to be clearly communicated and replicable.

After long Years study on the subject of knowledge I am now in a condition to present, in the clearest possible way, the evidences collected in regard of substance whose existence was suggested from illustrious men, in the Science World, since civilization began.

The name I gave it long time ago is  $[Ether/ESF]$  and since, I never needed revision of name or change of definition.

My faith in the Divine Maker tells me that this discovery was inspired by Him.

The Idea that there was Substance in the Universal Space attracted my attention when I was in High school when my mind was exposed to the thinking of the ancient philosophers and slowly I started to investigate the possible effects which this substance could induce in the physical world, my conception strengthened on the base of the first page of the Bible where the Prophet says that God divided the Waters inside an Primordial Universe into “those of the Heaven and those of Earth”.

This vision is apparently subjected to high criticism if we do not distinguish between Prophecy and Science since in Science the facts need concrete proof, whereas the Word of a Prophet being originated by perfect Divine Vision overcomes Human understanding and in almost all cases is interpreted once the Prophecy has been fulfilled.

With the “Waters of Heaven” mentioned by Prophecy there was no exception and one will have to concede now, whilst I present my conclusions, that the Biblical description of the Natural World fits perfectly with an acceptable theory based on Water as basic Substance identifiable with presence of [*Ether/ESF*] in the Universe which is having the same density of Water  $\rho_W = \rho_{Ether/ESF} = 1 \left[ \frac{Ton}{m^3} \right]$  and fits the definition of Water as Substance, although doesn't satisfies our concept of Water, nevertheless is maintaining identity of Water to a limit point of single particle identifiable also with presence of [*Ether/ESF*] and contributes in that status interacting with the Reality of the physical World.

“Comment regarding physical nature of Water”:

At this point the only possible conclusion in regard to the search of a particle of mass concentrated to a maximum possible density through use of concepts of classic mechanics, was that I had to reexamine the size of a particle of Water, maintaining the assumption that the Nature of things was opposing in the Euclidean Space, to physical Mass (as substance, occupying volumes of Space, as liquid, solid or gas at different densities,) another status of substance in coexistence with it whose interaction with the physical mass were of absolute necessity in order to explain physical phenomena.

To the physical mass of density  $\rho = 1 \frac{Ton}{m^3}$ , I opposed an [Ether/ESF] basically correct in interpretation consisting of an unit of substance present in space at density  $\rho_{[Ether/ESF]} = 1 \frac{Ton}{m^3}$ , in the center of a unit of volume  $[SF]_U = 1m^3$  from which all the substance had been compressed at density

$\rho_{IP} = c^2 \left[ \frac{Ton}{m^3} \right]$  inside a volume:

$$[SF]_{IP} = V_{SF} = \frac{1}{c^2} = 1.111\bar{1} e^{-17} [m^3]$$

maintaining average density of water  $\rho_W = 1 \left[ \frac{Ton}{m^3} \right]$  inside the unit of volume  $[SF]_U = 1m^3$  practically empty.

Since the product:

$$\rho_{Ether/ESF} = \rho_{IP} \cdot V_{SF} \equiv \rho_W \cdot 1 \left[ \frac{Ton}{m^3} \right]$$

Presentation of Substance according to the official Science, from the very beginning found consensus that at the end of a fixed number of divisions there should have been presence of an indivisible particle (it was called *atom*  $\equiv$  *indivisible* and this was the path I followed in my search.

I had to consider, that the particle of [Ether/ESF] conceived this way was far bigger than a molecule of Water in contraposition in the physical world and that was necessary to divide the Space Fabric  $[SF]_U$  if one wanted valid results.

This due to the fact that “lately” I managed to calculate the Radius  $r_W \cong 160 \text{ pm}$  at density  $\rho_W = 1 \left[ \frac{\text{Ton}}{\text{m}^3} \right]$  ) of a Molecule of Water.

## “Description of physical characters of a Water molecule and search of its interactions with the primary substance which is [“Ether/ESF”]

Basic interest of my activity was and is now the study of the gravitational phenomena along which I made the following fundamental conclusions:

- 1) The Universal Reality is result of entropic degradation along the time, acting in association with the [Ether/ESF] coexisting with the gravitational mass which absorbs it and transforms it into addition to it.
- 2) To the absorption (continuous in time) inside the gravitational mass is associated a simultaneous phenomenon of internal degradation (exfoliation) of the gravitational mass into expanded mass at density of Heat  $\left[ \frac{\text{kJ}}{\text{m}^3} \right]$  which in turn, is absorbed under entropic degradation, radially away from it, by the phase  $[E_{ESF}]$  of the [Ether/ESF] as dissipation (which as transformation) is in analogic correspondence with the gravitational one.

This substance, as mentioned above, “[Ether/ESF]” in order to be at density

$\rho_W = 1 \left[ \frac{\text{Ton}}{\text{m}^3} \right]$  and be empty “in appearance” should have consisted of particles [IP] centered inside a cubic volume of Space Fabric  $[SF]_U = 1[\text{m}^3]$  at density:

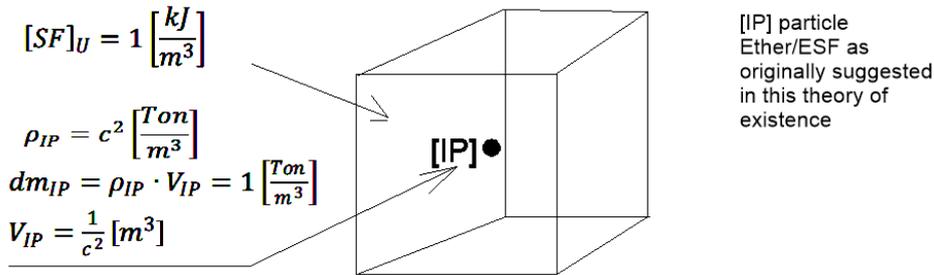
$$\rho_{IP} \cdot [SF]_U = c^2 \left[ \frac{\text{Ton}}{\text{m}^3} \right]$$

So that one particle of volume:

$$V_{SF} = \frac{[SF]_U}{c^2} = 1.111\bar{1}e^{-17} [m^3]$$

Containing mass at density  $\rho_{IP} = 1 \left[ \frac{IP}{m^3} \right] \equiv c^2 \left[ \frac{Ton}{m^3} \right]$  inside the volume  $V_{SF}$  would contain  $(IP) = \rho_{IP} \cdot V_{SF} = 1[Ton]$  and if that particle were placed in the center of the empty volume  $[SF]_U = 1[m^3]$  we would have that an entity  $[SF]_U$  containing a particle of mass  $1[Ton]$  in its center, on the whole would have a density :

$$\rho_W = (IP) \cdot \{[SF]_U = 1[m^3]\} = 1 \left[ \frac{Ton}{m^3} \right]$$



This way to have mass of  $1 \left[ \frac{Ton}{m^3} \right]$  since for a single  $(IP)$  particle inside the unit of volume  $1[m^3]$  at density  $\rho_{IP}$  was allocated a volume:

$$V_{IP} = \frac{[SF]_U}{c^2} = 1.111\bar{1}e^{-17} [m^3]$$

Leaving the rest nominally empty but in effects occupied by a Space Fabric  $\{[SF]_U = 1[m^3]\}$  which to exist resulted that to be defined by substance at mass density  $\rho_{SF} = 1 \left[ \frac{kJ}{m^3} \right]$ .

Note: Space Fabric  $\{[SF]_{U-kJ} \equiv 1 \left[ \frac{kJ}{m^3} \right]\}$  is a definition of status of existence of mass rigidly associated to the volume  $\{[SF]_U = 1[m^3]\}$  containing the particle  $(IP)$  in the center at density  $\rho_{IP} = c^2 \left[ \frac{Ton}{m^3} \right]$  see above diagram.

This would have been an acceptable solution if it wasn't for the fact that the radius of a molecule of Water at density

$\rho_W = 1 \left[ \frac{\text{Ton}}{m^3} \right]$ , as calculated by me is about 160 [pm] whereas the radius of a single particle (IP) of Ether/ESF (assumed spherical) occupying the unit of volume  $1[m^3]$  at density  $\rho_{IP}$  (deducted from the above volume  $V_{SF}$ ) results to be far too high:

$$R_{IP} = \frac{1}{2} \sqrt[3]{V_{SF}} = \frac{1}{2} \sqrt[3]{\frac{1}{c^2}} = 0.000001115721 \dots [m] = \\ = 1115721[pm]$$

Leaving no possibility whatsoever of interaction between particles [ESF] residing at  $\rho_{IP} = c^2 \left[ \frac{\text{Ton}}{m^3} \right]$ , as mass contained in the center of the unit of volume  $\{[SF]_U = 1m^3\}$  in status [Ether/ESF] and water molecules .

In order to have a situation allowing complete interaction between the (IP) particles in the Ether/ESF and the [IP] clustered inside the molecules of the physical reality, they need to exist with the same dimensions both in the [Ether/ESF] and in the physical mass. As it happens they can be calculated and this is what I am going to do.

### “ A fundamental discovery”

A fundamental moment took place when I managed to calculate the volume of a Water Molecule through application of Gas Law of A. Avogadro and I extended it to substances in solid status.

I made what I called the **“Ruggeri observation concerning Gas Law of Avogadro”** when I calculated the number of molecules of Gas contained inside  $1[m^3]$  starting from the number of molecules contained inside a mole ( $0.02236 [m^3]$ ):

It resulted that multiplying Avogadro's constant by the number of moles  $\frac{N_m}{m^3} = \frac{1000}{22.36} = 44.72$  inside the unit of volume  $1[m^3]$  I obtained:

$$\tilde{N} = N_A \cdot N_m = 6.037e^{23} \cdot 44.72 = 2.7e^{25} = (3e^8)^3 = c^3$$

**The cube of the speed of light !**

**See papers published in the GSJournal**

But this was a number of molecules of **water in Gas status!** Nevertheless when I transferred this number to the number of molecules of Water in status of Liquid/Solid at STP using this definition of Space Fabric, it came out that one unit of Space Fabric i.e:  $\{[SF]_U = 1[m^3]\}$  would contain a number of Water molecules in liquid/solid Status:

$$\tilde{N}_W = c^3 \cdot 1118 = 3.01..e^{28}$$

Therefore a molecule of water of mass:

$$dm_W = \frac{1}{c^3 \cdot 1118} = 3.31e^{-29} [Ton]$$

would occupy at density:

$$\rho_W = 1 \left[ \frac{Ton}{m^3} \right]$$

a volume of  $[SF]_W = \frac{[SF]_U}{3.01e^{28}} = 3.31e^{-29} [m^3]$

But now applying to the water the definition of Ether/ESF previously conceived considering a model of particle of reference  $[SF]_U = 1[m^3]$  (see above), in accordance with A. Avogadro's Law came out that it contains the value of Space Fabric belonging to Water:

$$[SF]_W = \frac{1}{c^3 \cdot 1118} [m^3]$$

This is not enough since results that the Water molecule still is divisible into a number of basic particles  $[BM]$  of  $SF_{W-IP}$  occupying a total of Space Fabric:

$$[SF]_W = \{40 \cdot 22.36\} = 894.4 [SF]_{W-IP}$$

that still maintain characters of Water (see here below).

I obtained this definition from considerations made comparing mainly the molecule of Hydrogen and that of Oxygen as fundamental components of that of Water (see here below):

$$H = 4 \cdot 22.36 = 89.44 \quad O = 32 \cdot 22.36 = 715.52$$

$$H_2O = (2 \cdot 4 + 32) \cdot 22.36 = 894.4 [IP]$$

When it all was associated to the observation that these molecules had as common multiple number of particles  $[IP]$  ( $n=22.36$ ) shared with Water at density  $\rho_W = 1 \left[ \frac{Ton}{m^3} \right]$  in Liquid/Solid conditions (I mean “smaller portions of the same whole, which in this case is the unit of mass contained at density  $\rho_W$  inside  $1[m^3]$  the  $[IP]$  particle I was looking for had to be a portion  $\frac{1}{894.4}$  that of Water or rather Water molecules had to contain  $894.4 [IP]$ . The particles  $[IP]$  contained at density  $\rho_{IP}$  inside the volume  $[SF]_{W-IP}$  to which from now on I will refer with the name of Space Fabric containing the Unit of Basic Mass BM or  $[BM]$  ).

(Note: if I divide  $1[m^3]$  of Water in many slices having character of Water, each slice remains Water until is reached the final particle beyond which the Water loses its identity) and this is what happens with the particles  $[BM]$  of  $[Ether/ESF]$  which are now considered particles similar to a minimal molecule of Water.

In conclusion, a subdivision of  $\{[SF]_U = 1[m^3]\}$  (containing Water) contains a number of particles:

$$[IP] \quad N_{[W-IP]} = c^3 \cdot 1118 \cdot 894.4 = c^3 \cdot e^6 = 2.7e^{31}$$

(each contained inside a cubic volume whose Fabric of Space is now is now a fraction  $\left(\frac{[SF]_U}{2.7e^{31}}\right)$  of the volume  $[SF]_U = 1[m^3]$  Originally proposed.

Now :  $[SF]_{W-IP} = \frac{[SF]_{U=1}[m^3]}{c^3 \cdot 1118 \cdot 894.4} = 3.703e^{-32}[m^3]$

Is containing a single particle (*IP*) of mass:

$$[BM] = 3.703e^{-32}[Ton]$$

at density  $\rho_{IP} = c^2 \left[ \frac{Ton}{m^3} \right]$

That for what said above occupies a volume of Space:

$$\frac{1}{c^2} [SF]_{W-IP} = \frac{3.703e^{-32}}{9e^{16}} = 4.11e^{-49}[m^3]$$

at a density  $\rho_{IP} = 1 \left[ \frac{IP}{m^3} \right]$

Inside which volume there is expanded mass that from now on will be named: *Quantum bm*  $\equiv Qbm$

$$Qbm = 3.703e^{-32}[kJ] \equiv dm_{kJ}$$

The cube  $[SF]_{W-IP} = 3.703e^{-32}$  containing the expanded mass *Qbm* and the particle [*IP*] of basic mass [*BM*] in the center, is going under the name Basic Mass [*BM*].

A key relation between masses [*BM*] and *Qbm* is established now:

$$1[BM] = 3.703e^{-32}[Ton] \equiv c^2 Qbm = 3.703e^{-32}[kJ]$$

After all the diagram originally proposed was correct but only now we can see that the size of the [*Ether/ESF*] particle had to be enormously smaller .

Since at this point in the center of  $[SF]_{W-IP}$  there is one single [*IP*] particle we can justly say that we have reached a limit beyond which the mass loses its identity (as mass of Water) whilst at the same time as Basic Mass [*BM*] still satisfies the characters required from a particle of [*Ether/ESF*] coexisting with the physical gravitational mass.

We see now that a number of subdivisions of unit of the Space Fabric  $[SF]_{U=1} = 1[m^3]$  :  $N = (3e^8)^3 \cdot e^6 = 2.7e^{31}$

$$[SF]_{W-IP} = 3.703e^{-32}[m^3]$$

Has satisfactorily replaced the model  $\{[SF]_U = 1[m^3]\}$  suggested above in this paper) and is the cubic volume of  $[SF]_{W-IP}$  containing in its center only one particle  $[IP]$  at density:

$$\rho_{IP} = 1 \left[ \frac{IP}{m^3} \right] = c^2 \left[ \frac{Ton}{m^3} \right]$$

Residing inside its own cubic volume of Space Fabric:

$$[SF]_{IP} = V_{IP} = \frac{[SF]_{W-IP}}{c^2} = 4.114e^{49} [m^3]$$

If we suppose that  $[SF]_{IP}$  contains a spherical particle we obtain the maximum radius  $R_{IP}$  of a sphere internal to it:

$$Radius R_{IP} = \frac{1}{2} \sqrt[3]{4.114e^{49}} = 3.719..e^{-17} [m]$$

This spherical particle of radius  $R_{IP}$  has a value more acceptable than the one previously investigated (using the Space Fabric of one cubic meter  $\{[SF]_U = 1[m^3]\}$  to define an  $[IP]$  particle of  $[Ether/ESF]$ ) and represents a better choice of a basic particle of mass  $[BM]$  since opens the way to complete interpretation of phenomena of Gravitational Nature (and permits to proceed also in the chemical field) if one studies interrelations between coexisting substances having physical affinities (since mass is made up of molecules built up of basic building blocks of exactly the Same Size and occupying the same volume of Space Fabric in rigid multiple quantities kept together through Law of absorption).

Molecules are clusters of particles  $[IP]$  inside a fixed value of Space Fabric  $[SF]_W$  properly glued to each other at density  $\rho \left[ \frac{Ton}{m^3} \right]$  surrounded by the sum of the masses belonging to  $[SF]_{IP}$  in units of  $[Qbm]$  which then results compressed at a value of density  $\rho \left[ \frac{kJ}{m^3} \right]$  inside the  $[SF]_W$ .

Note : this topic will be expanded in due course.

Note: comparison between the average radius of a molecule in a mass in [Ton] say about  $R_m 160 e^{-12}$  ( 160 pm) and the above  $R_{IP}$  gives a ratio:

$$\frac{R_{molec}}{R_{IP}} = \frac{160e^{-12}}{3.719e^{-17}} = 4.3e^6$$

Flow of particles of [IP] of radius:

$$R_{IP} = 3.719 \dots e^{-17} [m] \text{ having dimension}$$

$4.3e^6$  smaller than the average radius of a molecule is extracted from the [Ether/ESF] to which they belong.

Said particles are running towards the center of the mass  $M(\rho, R)$  (towards its center) under the phenomenon of degradation of their status of existence (enacted by the entropic absorption). Their degradation consists on the fact that at the instant of absorption by  $M(\rho, R)$  they lose both their Space Fabric and a percentage of their mass (both transformed into [Qbm]s of Heat).

Heat is simultaneously subjected to further entropic degradation (dissipation) taking place on radial direction far away from the Mass  $M(\rho, R)$  (which originated it) under absorption by the phase  $[E_{ESF}]$  of the [Ether/ESF]).

See in the GSJ the papers:

“ Ruggeri Universal formula of dissipation”

“Gravitational Machine “how it Works”

Note: this theory of existence of [Ether/ESF] has been developed in order to justify the phenomena connected to Gravity and therefore open cycle of entropic degradations related to gravitational absorption of the particles of basic mass [BM] in the coexisting [Ether/ESF] by the mass  $M(\rho, R)$  followed up by the phenomenon “dissipation” as entropic degradation consisting of absorption of degraded mass in analogic correspondence to the gravitational absorption.

Its purpose is introduction of the concept that through gravity the  $[IP]$  particles at density  $\rho_{IP} = c^2 \left[ \frac{Ton}{m^3} \right]$  can be subjected to “exfoliation up to a maximum of  $c^2$  units of expanded mass” each unit able to occupy at density  $1 \left[ \frac{kJ}{m^3} \right]$  the unit of volume of Space Fabric)  $[SF]_{W-IP}$  :

$$[SF]_{W-IP} = \frac{[SF]_U}{(3e^8)^3 \cdot e^6} [m^3]$$

As;  $dm_{[SF]_{W-IP}} = \frac{1 [kJ]}{(3e^8)^3 \cdot e^6} [kJ]$

So that:

The Volume of Euclidean Space:

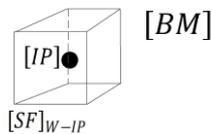
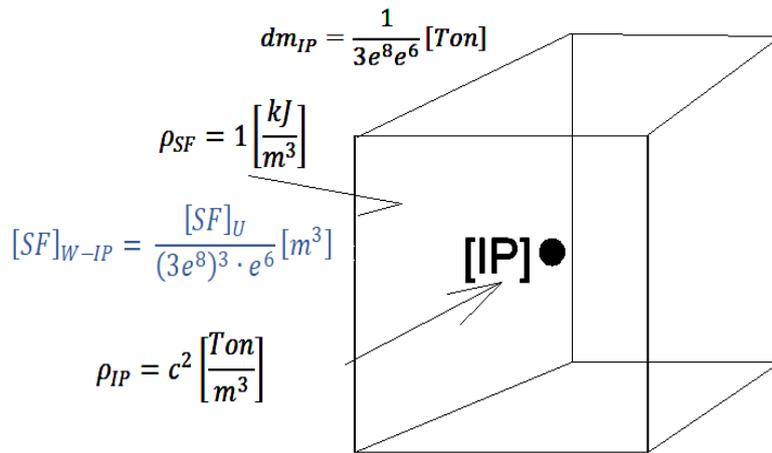
$$\left\{ [SF]_{W-IP} = \frac{[SF]_U}{(3e^8)^3 \cdot e^6} [m^3] \right\}$$

containing a composite entity  $[BM]$  (Basic Mass) of  $[Ether/ESF]$  , made up of expanded mass:  $1dm_{[SF]_{W-IP}} \equiv 1Qbm$  in units of  $\left[ \frac{kJ}{m^3} \right]$  occupying the  $[SF]_{W-IP}$  “in rigid-elastic” fashion, whilst contains in its center a particle of mass:

$$dm_{IP} = \frac{1 [Ton]}{(3e^8)^3 \cdot e^6} [Ton]$$

concentrated in units of mass  $[IP]$  at density :

$\rho_{IP} = 1 \left[ \frac{IP}{m^3} \right] \equiv c^2 \left[ \frac{Ton}{m^3} \right]$  in order that its density results to be in units of mass  $\rho = 1 \left[ \frac{Ton}{m^3} \right]$  (see above presentation) and yet to external observation appears “empty Space” and this is the definition of the:



“Basic Mass  $[BM]$  or composite particle of Ether/ESF”

“Or “Particle of Ether/ESF derived by Ruggeri from Gas Law of A. Avogadro” etc....”

END PART 1 of 2



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