THE GRAVITATION FINALLY DECRYPTED !!!

January 2019

The formula of "Gravitation of Nara" has been deduced from new hypotheses to explain gravitation: it is a new paradigm.

This formula makes it clear that repulsive gravitation exists: two bodies can repel under certain conditions; this phenomenon has been observed, but until now never proved by calculations.

- **below a certain distance (small), two bodies of close dimensions repel each other: protons and neutrons for example.**
- **the smallest body always pushes the biggest**
- **two bodies of the same dimensions always repel each other: two protons, two neutrons, two electrons always repel each other.**

These results are of major importance in physics, because they make it possible to explain and coherently a large number of physical phenomena,

among others:

- the unification of macroscopic and quantum physics
- the dilation of the galaxies
- the move away of the galaxies
- the charge (q) and the mass (m) designate the same thing → the origin of the electrostatic force
- the weak and the strong interaction
- the mass default
- the radioactivity
- the expansion of the gases
- the arrangement of the nucleons in the nuclei
- the prediction of volcanic eruptions and earthquakes: where and when ?
- the sunspots
- the bands of Jupiter
- the origin of water on Earth
- the disappearance of water on Mars
- .....

The most amazing

This formula demonstrates Newton's law of gravitation, which had never been demonstrated; Newton obtained it empirically.

We find that the Universal Constant of Gravitation is not so constant as that, which generates many questions about the principle of action and reaction.

Studies are in progress on other phenomena.

Introduction

This document, although mainly intended for the very initiated persons, was nevertheless designed to be understood by everyone; following the concept of Ernest Rutherford (one of the fathers of nuclear physics): "A theory that can not be explained to a waiter is probably not a very good theory"

That I reformulate differently:
"Whatever the complexity of a subject, if you can not explain it to a waiter (who in addition are today often very skilled), either you do not know well the subject, either the subject is not yet up to date.

In my opinion, everything is simple: it is the lack of understanding of phenomena that makes their formulations complex.

My work was done in an isolated and independent way: outside any institution, without constraint, obligation or obligation of result, without ego and without spirit of competition.

This gave me a lot of freedom and a lot of time: tenth of years and over hundred revisions.

I ask the reader to read the document in the same spirit: with a lot of detachment.
He will discover a new paradigm, hypotheses that will allow him to see things differently.

Purists may find miscalculations or poorly formulated equations. The purpose of this document is not to demonstrate mathematical skills, but to guide to another way of thinking.

For people who are not specialized in this field, it is important to know that there are many phenomena in physics that are still unexplained, although they are used to make radio communications, build nuclear power stations, cars, and make interplanetary trips. Among others:

- *the separation of quantum physics and classical physics.*
  Any object is made of atoms; yet the physics that explains the behaviour of atoms does not explain the behaviour of objects and vice versa.
- *the galaxies move away whereas logically they should attract. We still can not explain.*
- *the prediction of volcanic eruptions and earthquakes*
- *more hallucinating, the phenomenon of which we are most familiar, gravitation is still unexplained.*
  What attracts us to the earth?
  What makes two planets attract each other?
  What is this invisible thing between objects?

  It is thought that there are gravitational waves between objects: we still looking for them.

The reader may notice that there are very few references in the document and no referent.
Einstein said "madness is to behave in the same way and expect a different outcome".

What I said differently before knowing these words of Einstein "the stupidity is to persist in doing the same thing when you always get contrary results"

If I had built my hypotheses only on the existing, I would have reached the same results: that is to say dead ends. Of course it is with the knowledge of the existing that I could build my assumptions.

The purpose of this document is not to answer to any existing questions, but to try to make a very modest contribution to the resolution of some of the current questions.

Akihiko Nakamura

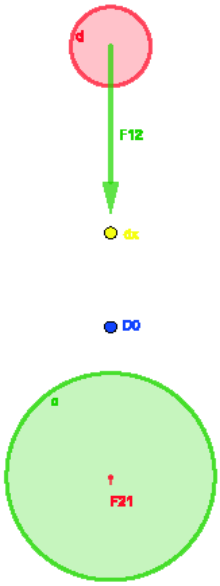
Summary of the phenomenon

We are all familiar with gravitation

The largest body (M1) is in green color, the smallest (M2) is in pink color

Let drop M2 (in pink) it falls on M1 (in green): it is attracted by M1.

- the force F12 that M1 (the largest) exerts on M2 is represented by a green arrow.
- the force F21 that M2 (the smallest) exerts on M1 is represented by a pink arrow.



The more M2 (in pink) approaches M1, the more the force F12 exerted on M2 increases.

There is, however, a phenomenon that has gone unnoticed.

From a certain point (yellow dot), the force F12 ceases to increase; it starts to decrease then to be zero at the blue point, then (from this point) changes of direction: the force becomes repulsive.

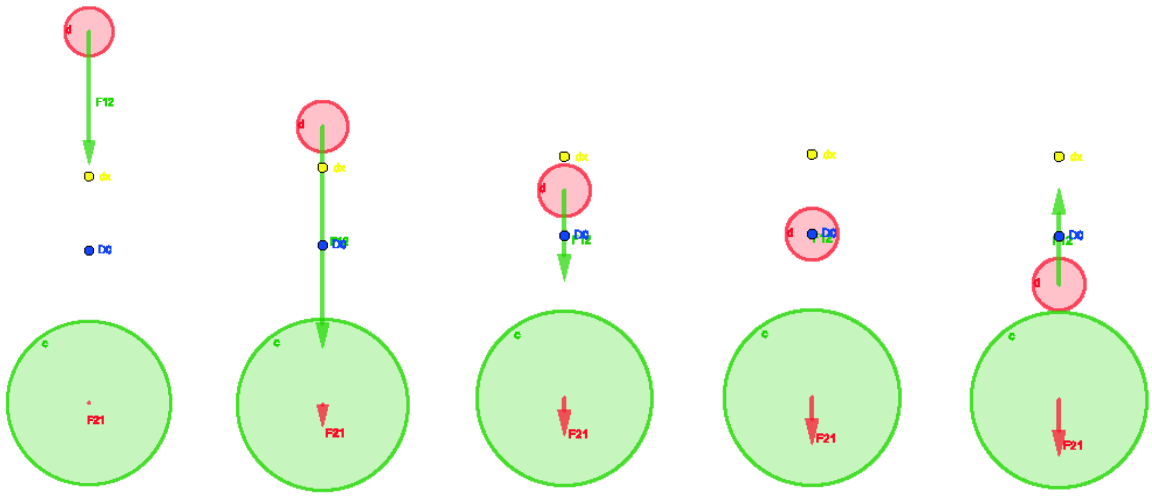
From the blue point, the closer we get to M1, the more repulsion increases.

Repulsive gravitation exists.

I have named "DISTANCE OF EQUILIBRIUM" the distance from the blue point to M1, the distance at which the force exerted on M2 becomes zero.

Let's look at what happens when we approach M2 to M1

In the figures below observe how the forces F12 (green arrow) and F21 (pink arrow) change when M2 (in pink) approaches M1 (in green)



When the two bodies come closer, the force exerted on M2 increases (Newton);
but there is a distance (yellow point on the image) from which the force exerted on M2 begins to decrease.

And there is a distance D0 (blue point on the figure) - 4th image - where the force exerted on M2 becomes null: it is the " DISTANCE OF EQUILIBRIUM ".

Below the " DISTANCE OF EQUILIBRIUM ", M2 is no longer attracted by M1, but rather pushed by M1: reversal of the direction of F1 / 2.

Please note that the smallest body always repels the largest: pink arrow in M1 (the largest).
And the closer the two bodies come together, the more the force of repulsion increases.

<u>But why do not we observe this phenomenon ?</u>

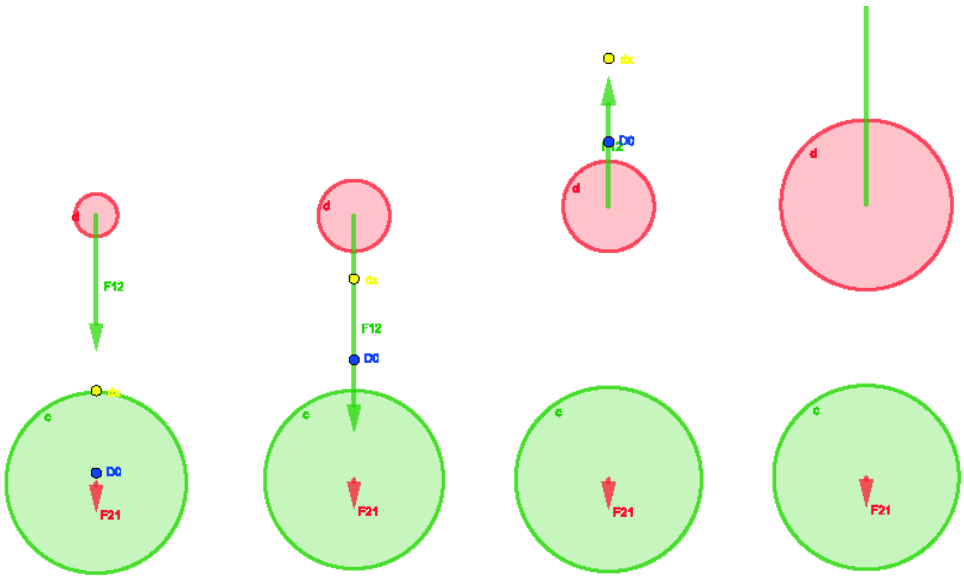
Because on Earth the yellow and blue dots are inside the Earth; because all the experiments are done with small objects: even *a mountain is a small object compared to the size of the Earth*.

The Nara Gravitation formula (page 8) shows that the equilibrium distance lies outside the body for bodies of close size and at a short distance.

For these points to be out of the Earth we have to experiment with objects almost the size of the Earth, like the planet Venus (!),

Let us observe how the equilibrium distance (blue dot) moves when we increase the size of M2.

In the figures below let's observe how the yellow and blue dots move as the size of M2 (in pink) increases.



As the size increases, as the equilibrium distance increases: the yellow and blue dots move away.

When M2 reaches the size of M1, 4th image, the yellow and the blue dots are rejected to infinity.
Which means that M2 is repelled whatever its distance to M1.

Two bodies of the same size always repel each other: whatever their distance.

Note that a smaller body <u>always</u> repels a larger body !

There is therefore a repulsive gravitation.

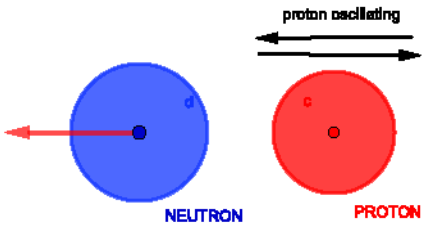
<u>Yet these mentioned phenomena are observable</u>

They are observable in the nucleus of atoms, in the link between neutrons and protons.

The neutron and the proton have very close dimensions; the neutron attracts the proton (smaller) which stabilizes itself at the equilibrium distance: very close to the neutron.

If we remove the proton from this equilibrium position then we release it, the proton will always return to this equilibrium position; thanks to the initial energy (when it has been moved), as with a swing or spring, it will go beyond the equilibrium position and return thereafter.

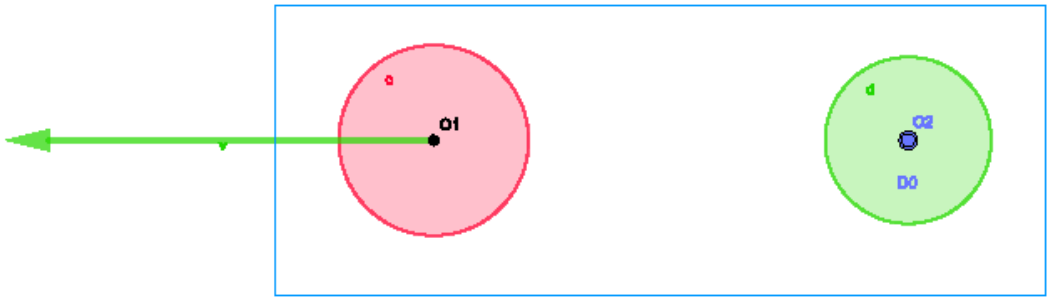
As nothing stops him, the proton will start to oscillate around this equilibrium position.



Two isolated bodies of different dimensions are always in motion

Let's take a proton positioned at the equilibrium distance of the neutron.

- the force that the neutron (in pink) exerts on the proton is null
- but the force that the proton (in green) exerts on the neutron is not null.



The sum of the preceding forces exerted on the center of gravity of the whole neutron-proton is thus not null; thus the set of neutron-proton is in constant motion: in the direction of the proton towards the neutron.

The consequences are numerous

All that has been said previously is valid for macroscopic objects as well as for quantum objects.
And this explains a lot of phenomena:

- the gas expansion is due to repulsions between atoms of the same dimensions
- the electric force, between neutrons and protons is a gravitational effect:
  gravitational attraction of the proton (smaller) by the neutron (bigger).
- We can notice that protons and protons (or neutrons and neutrons) always repel each other because of the same dimensions; and that protons and neutrons attract each other because of different sizes.
  We can deduce that **q = m: electric charges and masses designate the same thing**.
- The weak and strong interaction between neutrons and protons is only an illustration of the equilibrium distance previously described. The proton remains locked on this equilibrium position.
  If we force it to move away, it will always return to the equilibrium position.
- Galaxies (including ours: the Milky Way) are expanding.
  The heart of any galaxy being extremely massive and a very small body, it therefore repels all the (larger) planets that surround him.

Other phenomena have been demonstrated, such as:

- the phenomena inside the nuclei of the atoms
- the moving away of the galaxies: dark matter does not exist !
- the disappearance of water on Mars
- .....

How was this discovered ?

It is by trying to calculate the force exerted between two bodies, **taking into account the dimensions of the bodies** (which have never been formally considered in the gravitation formulas), and ignoring the existing gravitational formulas that I have discovered these phenomena: the equilibrium distance, the repulsive gravitation ....

It is a series of Hypotheses that I named **"Nara Hypothesis"** and which resulted in the **"Formula of Gravitation of Nara"**.

It should be noted that my objective was not to demonstrate all the phenomena mentioned at the beginning of this document. Only after discovering Nara's gravitation formula, did I realized that it could explain all these phenomena.

It took tens of tenth of years and hundredth of revisions to achieve these results, including two years entirely dedicated to the verification of results.

The following pages are taken from the complete document containing all the details of the calculations. The complete document will be presented later by the author.

THE FORMULA OF GRAVITATION OF NARA SCHOOL

The force exerted on a spherical body with mass M_1 and radius R_1 on another spherical body M_2, R_2.

$$F_{(M1\ SUR\ M2)} = -i.\frac{\sqrt{\pi}}{4\sqrt{2}.\mu_2} * \frac{k_1.k_2.M_1.M_2}{8\pi.D^2} * * *$$ multiplied by the sum of the two lines below

$$+(1+\cos\vartheta_2).(-1)^{\eta-1} * A * \left\{ A_1.[A_2+(2\eta-1).A_3-2\eta.A_4]+A_5.A_{10}.(A_{11}-A_3) * \frac{(1-\eta).A_{12}+(1+\eta).A_7-2A_6}{2.(A_8-A_9)} \right\}$$

$$+(\cos\vartheta_1-\cos\vartheta_3) * B. * \left\{ B_1.[\eta.B_2-B_3+(1-\eta).B_4]+B_5.B_{10}.(B_{11}-B_3) * \frac{(B_6-B_7)+(1-\eta).(B_{12}-B_{13})}{(B_8-B_9)} \right\}$$

WITH

$$\eta = \frac{\frac{R_1-R_2}{\|R_1-R_2\|}+1}{2}$$

$$\cos\vartheta_3 = -\frac{R_1+R_2}{D}$$

$$\cos\alpha_3 = +\frac{R_1+R_2}{D}$$

$$\cos\vartheta_1 = \cos\alpha_1 = \frac{R_1-R_2}{D}$$

$$\cos\vartheta_{P_1} = \pm\sqrt{\frac{1+\cos\vartheta_1\cos\vartheta_3+\sqrt{[1-\cos^2\vartheta_1][1-\cos^2\vartheta_3]}}{2}}$$

$$\cos a = \frac{R_2}{\sqrt{R_1^2+D^2-2R_1(R_1+R_2)}} \rightarrow \cos\vartheta_2 = \cos\vartheta_3\sqrt{\frac{1+\cos a}{2}}+\sqrt{(1-\cos\vartheta_3^2).\left(\frac{1-\cos a}{2}\right)}$$

$$\sqrt{a_{\vartheta_2\to-\vartheta_2}}=\frac{\mu_2\sqrt{2}}{k_2.M_2}\frac{1}{(1+\cos\vartheta_2)}$$

$$\sqrt{b_{-\vartheta_2\to\vartheta_2}}=\frac{\mu_2\sqrt{2}}{k_2.M_2}\frac{1}{(1-\cos\vartheta_2)}$$

$$\sqrt{a_{\vartheta_1\to\vartheta_3}}=\frac{\mu_2\sqrt{2}}{k_2.M_2}\frac{1}{(\cos\vartheta_1-\cos\vartheta_3)}$$

$$\sqrt{b_{\vartheta_3\to\vartheta_1}}=\frac{\mu_2\sqrt{2}}{k_2.M_2}\frac{1}{[2-(\cos\vartheta_1-\cos\vartheta_3)]}$$

μ_2 constant (dimension kg) to be determined have been introduced to get an homogeneous dimension in $\sigma_{\Delta\vartheta}\equiv\frac{\Delta m_{\Delta\vartheta}}{\mu_2}$

$$A=\int_{\alpha=\alpha_3}^{\alpha=0}\frac{\left(1-\frac{R_2}{D}\right)-\frac{R_1}{D}\cos\alpha}{\left[\left(1-\frac{R_2}{D}\right)^2+\left(\frac{R_1}{D}\right)^2-2\frac{R_1}{D}\left(1-\frac{R_2}{D}\right)\cos\alpha\right]^{\frac{3}{2}}}.\sin\alpha.d\alpha$$

$$A_1=\frac{1}{(1+\cos\vartheta_2)}.\exp\left(-\frac{1}{a_{[+\vartheta_2\to-\vartheta_2]}}\right)$$

$$A_2=\operatorname{erf}\left[(\pi-\vartheta_2)\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}+i\frac{1}{\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}}\right]-\operatorname{erf}\left[(\pi-\vartheta_2)\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}-i\frac{1}{\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}}\right]$$

$$A_3=2.\operatorname{erf}\left[i\frac{1}{\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}}\right]$$

$$A_4=\operatorname{erf}\left[\frac{\pi}{2}\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}+i\frac{1}{\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}}\right]-\operatorname{erf}\left[\frac{\pi}{2}\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}-i\frac{1}{\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}}\right]$$

$$A_5=\frac{1}{(1-\cos\vartheta_2)}.\exp\left(-\frac{3}{4.b_{[-\vartheta_2\to+\vartheta_2]}}\right)$$

$$A_6 = \operatorname{erf}\left[\vartheta_2\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}} + i\frac{1}{\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}}}\right] - \operatorname{erf}\left[\vartheta_2\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}} - i\frac{1}{\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}}}\right]$$

$$A_7 = 2.\operatorname{erf}\left[i\frac{1}{\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}}}\right]$$

$$A_8 = \operatorname{erf}\left[\vartheta_2\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}} + i\frac{1}{2\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}}}\right] - \operatorname{erf}\left[\vartheta_2\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}} - i\frac{1}{2\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}}}\right]$$

$$A_9 = 2.\operatorname{erf}\left[i\frac{1}{2\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}}}\right]$$

$$A_{10} = \exp\left(-\frac{1}{4a_{[+\vartheta_2\to-\vartheta_2]}}\right)$$

$$A_{11} = \operatorname{erf}\left[(\pi-\vartheta_2)\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}} + i\frac{1}{2\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}}\right] - \operatorname{erf}\left[(\pi-\vartheta_2)\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}} - i\frac{1}{2\sqrt{a_{[+\vartheta_2\to-\vartheta_2]}}}\right]$$

$$A_{12} = \operatorname{erf}\left[\frac{\pi}{2}\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}} + i\frac{1}{\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}}}\right] - \operatorname{erf}\left[\frac{\pi}{2}\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}} - i\frac{1}{\sqrt{b_{[-\vartheta_2\to+\vartheta_2]}}}\right]$$

$$B = \left[\cos(2\vartheta_{P_1}) - i.\sin(2\vartheta_{P_1})\right] * \int_{\alpha=\alpha_1}^{\alpha=\alpha_3} \frac{-\cos\vartheta_{P_1} - \frac{R_2}{D} + \frac{R_1}{D}\sin\vartheta_{P_1}.\sin\alpha + \frac{R_1}{D}\cos\vartheta_{P_1}\cos\alpha}{\left(1 + \frac{R_1^2+R_2^2}{D^2} - 2\frac{R_1R_2}{D^2}\sin\vartheta_{P_1}.\sin\alpha - 2\frac{R_1}{D}\left(1+\frac{R_2}{D}\cos\vartheta_{P_1}\right)\cos\alpha + 2\frac{R_2}{D}\cos\vartheta_{P_1}\right)^{\frac{3}{2}}}.\sin\alpha.d\alpha$$

$$B_1 = \frac{1}{(\cos\vartheta_1 - \cos\vartheta_3)}.\exp\left(-\frac{1}{4a_{[+\vartheta_1\to+\vartheta_3]}}\right)$$

$$B_2 = \operatorname{erf}\left[2.(\vartheta_{P_1} - \frac{\pi}{2})\sqrt{a_{[+\vartheta_1\to+\vartheta_3]}} + i\frac{1}{2\sqrt{a_{[+\vartheta_1\to+\vartheta_3]}}}\right] - \operatorname{erf}\left[2.(\vartheta_{P_1} - \frac{\pi}{2})\sqrt{a_{[+\vartheta_1\to+\vartheta_3]}} - i\frac{1}{2\sqrt{a_{[+\vartheta_1\to+\vartheta_3]}}}\right]$$

$$B_3 = 2.\operatorname{erf}\left[i\frac{1}{2\sqrt{a_{[+\vartheta_1\to+\vartheta_3]}}}\right]$$

$$B_4 = \operatorname{erf}\left[2.(\vartheta_{P_1} - \vartheta_1)\sqrt{a_{[+\vartheta_1 \to +\vartheta_3]}} + i\frac{1}{2\sqrt{a_{[+\vartheta_1 \to +\vartheta_3]}}} \right] - \operatorname{erf}\left[2.(\vartheta_{P_1} - \vartheta_1)\sqrt{a_{[+\vartheta_1 \to +\vartheta_3]}} - i\frac{1}{2\sqrt{a_{[+\vartheta_1 \to +\vartheta_3]}}} \right]$$

$$B_5 = \frac{1}{[2 - (\cos\vartheta_1 - \cos\vartheta_3)]}.2\exp\left(-\frac{3}{4.b''_{[\vartheta_3 \to \vartheta_1]}} \right)$$

$$B_6 = \operatorname{erf}\left[\frac{1}{2}\left(\vartheta_{P1} - \frac{\pi}{2} \right)\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}} + i\frac{1}{\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}}} \right] - \operatorname{erf}\left[\frac{1}{2}\left(\vartheta_{P1} - \frac{\pi}{2} \right)\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}} - i\frac{1}{\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}}} \right]$$

$$B_7 = 2.\operatorname{erf}\left[i\frac{1}{\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}}} \right]$$

$$B_8 = \operatorname{erf}\left[[(\vartheta_{P1} + \pi) - \vartheta_3]\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}} + i\frac{1}{2\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}}} \right] - \operatorname{erf}\left[[(\vartheta_{P1} + \pi) - \vartheta_3]\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}} - i\frac{1}{2\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}}} \right]$$

$$B_9 = 2.\operatorname{erf}\left[i\frac{1}{2\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}}} \right]$$

$$B_{10} = \exp\left(-\frac{1}{4a_{[\vartheta_1 \to \vartheta_3]}} \right)$$

$$B_{11} = \operatorname{erf}\left[(\vartheta_{P1} - \vartheta_1)\sqrt{a_{[\vartheta_1 \to \vartheta_3]}} + i\frac{1}{2\sqrt{a_{[\vartheta_1 \to \vartheta_3]}}} \right] - \operatorname{erf}\left[(\vartheta_{P1} - \vartheta_1)\sqrt{a_{[\vartheta_1 \to \vartheta_3]}} - i\frac{1}{2\sqrt{a_{[\vartheta_1 \to \vartheta_3]}}} \right]$$

$$B_{12} = \operatorname{erf}\left[\left(\frac{\pi}{2} + \vartheta_{P1} \right)\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}} + i\frac{1}{2\sqrt{\frac{b''_{[\vartheta_3 \to \vartheta_1]}}{4}}} \right] - \operatorname{erf}\left[\left(\frac{\pi}{2} + \vartheta_{P1} \right)\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}} - i\frac{1}{\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}}} \right]$$

$$B_{13} = \operatorname{erf}\left[\frac{1}{2}\left[\left(\vartheta_{P1} + \pi \right) - \vartheta_1 \right]\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}} + i\frac{1}{\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}}} \right] - \operatorname{erf}\left[\frac{1}{2}\left[\left(\vartheta_{P1} + \pi \right) - \vartheta_1 \right]\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}} - i\frac{1}{\sqrt{b''_{[\vartheta_3 \to \vartheta_1]}}} \right]$$

10 FIRST DEDUCTIONS (extracted from the main document)

It should be noted that this formula was obtained from a blank sheet using none of the existing gravity formulas: neither that of Newton, nor that of Einstein.

Initially it was a matter of calculating the force that exists between two spherical bodies (the predominant form in the universe).

The introduction of the dimension (the radius) was imposed immediately and Newton's formula of gravitation appeared at the end of the calculations, without me expecting it.

We find the law of gravitation of Newton but with a corrective factor which takes into account the dimensions of the bodies.

The total pressure is complex (real + imaginary): $\cos(2\vartheta_{P_1}) - i.\sin(2\vartheta_{P_1})$

What can the imaginary part mean ?

- does this imaginary part intervene in the propagation ?
- does this imaginary part mean that the work of the corresponding force is producing a conservative energy ?

According to my interpretation

- the real part is a working force
- the imaginary part is a conservative force

In the formula, two parameters are to be determined: k_i **et** μ
These constants could be determined using the formula of gravitation as well as the formula of the force between two charges q_1 and q_1.

Parameter k_i
One of the assumptions used in the calculations is that any body, whether classical or quantum, radiates energy, whatever its temperature.

$$Emitted\ Energy = k_1.M_1$$

The question I asked myself is:
k_1 is it constant or does it depends on mass or density? I will have a tendency (it is intuitive) to say that k_1 depends on the mass M_1: the larger the mass of a body, the more it radiates.

Always according to my intuitions: $k_1 = e^{-\frac{\nu_1}{M_1}}$

$\sqrt{a_{\vartheta_2 \to -\vartheta_2}} = \frac{\mu_2 \sqrt{2}}{k_2 . M_2} \frac{1}{(1+\cos \vartheta_2)}$ Constant μ

μ_2 has been introduced so that formulas of the following type are dimensionless:
μ_2 has the dimension of a mass

10.1 Unification of macroscopic and quantum physics

HYPOTHESIS 9 OF NARA
The formula of the gravitation of Nara is valid for all the bodies:
- that they are quantum
- or that they are astronomical

10.2 If M2 is smaller than M_1 ($R_2 < R_1$)

- M_2 (smaller) is attracted to the larger M_1 body
- However we can see that if the diameter (R_2) of M_2 increases, beyond a certain diameter and from a certain distance D_0 (approaching M_1), M_2 ceases to be attracted by M_1: the force that applies to M_2 becomes zero.
  Below D_0, M_2 is strongly repelled by M_1.

  This is what happens between the neutron (M1) and the proton (M2).

<u>This distance D0</u> where the force becomes zero, <u>would it be an explanation of the weak interaction (at a short distance)</u> ? because when the force between the two bodies is zero (proton and neutron for example) we can no longer distinguish the proton from the neutron.

In applying this formula to the neutron and the proton one will be able to determine the distance D_0 and to know if the proton and the neutron are touching, or if they remain at a certain distance.

Is this distance D_0 in relation to the distance at which one body can orbit around another body?

When the two bodies are in contact ($D_0 = R_1 + R_2$) one can determine the radius R_2 below which M_2 is always attracted.

10.3 If M_2 is the same diameter as M_1 ($R_2 = R_1$)

M_1 and M_2 systematically repel

10.4 If M_2 is larger than M_1 ($R_2 > R_1$)

M_2 (larger) is repelled by M_1 (smaller)

However, it should be noted that during this time, M_1 (smaller) is attracted by M_2 (here larger).

The combined result of these phenomena is the collision between M_1 and M_2 because the smaller bodies undergoing higher pressure move faster.

The center of gravity of both bodies moves rectilinearly.

> **HYPOTHESIS 10 OF NARA**
>
> **There is a repulsive gravitation.**
>
> - if M_1 and M_2 are of the same dimensions they repel each other
> - if M_2 is larger than M_1, M_1 (smaller) is always attracted by M_2 (larger); but M_2 (bigger) is always repelled by M_1 (smaller)
> - and there are cases where bodies of different dimensions repel each other

10.5 Figure 10.5 summarizes the formula

- whatever the size, the smallest mass always repels the largest
- for M_2 small, M_2 is attracted by M_1 while M_2 pushes M_1 (larger)
- when the size of M_2 increases from a certain diameter, the attraction force exerted on M_2 decreases when M_2 is approached by M_1; to end up being zero at a distance D_0.
- if we continue to decrease the distance, the force on M_2 is reversed: M_2 resists the approximation.

The proportion of forces is not respected in the figure

10.6 Newton's 3rd Law and the Principle of Equivalence

Newton's 3rd law which states that the forces F_{12} and F_{21} are equal

Now we have seen previously that when M_2 is smaller than M_1, M_2 is attracted by M_1 while M_1 is repelled by M_2: the forces are in the same direction: from the smallest to the largest body.

Moreover the force exerted on M2 is different from the force exerted on M1: the force that the Sun exerts on the Earth is different from the force that the Earth exerts on.

Principle of equivalence
Since the forces acting on two bodies of different sizes are different, the feather and the lead do not fall at the same speed even though recently it has been announced that the principle of equivalence has been verified within 10^{-14}.

10.7 *Two interacting bodies are always in motion*

- if the bodies repel each other, they are always moving: they move away.

- *if the bodies attract each other, even though the smaller one repels the larger, the smaller one ends up sticking to the bigger one, because attracted by the bigger one.*

The force that the greatest body exerts on the smallest being greater than the force exerted by the smallest on the larger, the resultant is not zero: the set of two bodies in contact moves and even with an acceleration.

This is valid even if the initial speed of the bodies was zero at the beginning.

> ***HYPOTHESIS 11 OF NARA***
> *Two interacting bodies - even in contact - always move.*

10.8 *Interaction between three aligned bodies and radii $R_1 > R_2 > R_3$*

The possible positions of the bodies are:

- $M_1\, M_2\, M_3$
- $M_1\, M_3\, M_2$
- $M_2\, M_1\, M_3$

Positioning 1

M_1 *attracts* M_2

M_2 *attracts* M_3

but also

M_1 *is repelled by* M_2

M_2 *is pushed back by* M_3

Depending on the distance of M_3, M_3 can be totally in the shadow of M_2, or the radiations from M_1 can reach M_3

- *the radiation coming from M_1 and reemitted by M_2 (from the center) always push M_3.*
- *the radiation emitted by M_1 that can directly reach M_3 (following a ring) has the effect of repelling M_3.*

> ***HYPOTHESIS 12 OF NARA***
>
> ***The interposition of a body between two bodies, or the aligned stacking of several bodies, has the effect of:***
>
> - ***to reduce the attractive force, if there was attraction.***
> ***the further away the body is in the stack, the lower the attraction***
> - ***to increase the repulsion, if there was repulsion***
> ***the further away the body is in the stack, the stronger the repulsion***

The demonstration will be made later.

10.9 The remoteness of galaxies and the expansion of the universe

The previous result is of great importance. It shows that gravity can be repulsive which could explain that the galaxies are moving away.

> **HYPOTHESIS 13 OF NARA**
> The black holes around which the galaxies gravitate are excessively small compared to the galaxies that surround them, the black hole repels all the galaxies that surround them.

When the galaxies are more aligned they are more repulsed because of the effect of the re-radiated beams.

Dark matter and dark energy do not exist.

10.10 The Big Bang

Planets are formed by accretion of matter. As mass and volume increase, the proto-planet attracts more and more bodies.

When the mass becomes very important three scenarios can arise:

- the proto-planet becomes a planet
- the planet then becomes a star possibly with its procession of planets
- if the above star has no planets (which serve as repulsors for new bodies), the planet continues to grow to end up collapsing on itself: it becomes a black hole.

From this moment the black hole (extremely small and very massive) starts to repel all the galaxies that surround it.

> **HYPOTHESIS 14 OF NARA**
> The Universe existed long before the Big Bang, 13.7 billion years ago. It is our galaxy that was formed 13.7 billion years ago during the collapse of a super-star black hole (extremely small and very massive) and began to repel all galaxies (bigger) that surrounded him.

10.11 Masses and charges refer to the same thing: Q = M

- if M_2 and M_1 are of different sizes, they attract (although the smallest grows the biggest).
- if M_2 and M_1 are of the same dimensions, they repel each other

This is exactly what happens for electrical charges:

- two charges of the same signs repel each other
- two charges of opposite signs attract each other

> **HYPOTHESIS 15 OF NARA**
>
> **Masses and charges refer to the same thing: Q = M**

The reader will be able to observe that the formulas of gravitation and the formulas of electrostatics are similar.

All gravitation experiments can be done with electrical charges.

10.12 Signs can be attributed to the masses

HYPOTHESIS 16 OF NARA

By convention we can give the sign + to the biggest masses and the sign - to the smallest ones.

If they are of the same dimensions we can assign indifferently the sign + or the sign -

An isolated mass (= charge) has no sign

- the Moon is negative compared to the Earth and the Sun
- the Earth is positive compared to the Moon, but negative compared to the Sun
- the Sun is positive compared to the Earth and compared to the Moon

10.13 Unification of the 4 fundamental forces

HYPOTHESE 17 OF NARA
All forces (electromagnetic, strong, weak) are the variants of gravitation.

Electromagnetic force
Q=M → the electric force (electromagnetic, therefore) is only a force of gravitation

Strong interaction
The strong interaction appears at the distance D_0, where the force on M_2 is null:
when one deviates from this distance, a force tends to bring it back to it.

Weak interaction
The weak interaction is found in two different phenomena:

- in the strong interaction that manifests itself at short distance:
  at the distance D_0 no experiment can distinguish proton and neutron since the force that binds them is zero.
- in nuclear disintegration: see paragraph on "Radioactivity"

10.14 The water of the planets

> **HYPOTHESE 18 OF NARA**
> **In addition to being at the right distance to be at the right temperature (but also at the right pressure) the necessary condition have water on a planet is:**
>
> - **its atmosphere must contain oxygen: the hydrogen is present everywhere**
> - **<u>and it (the planet) must have a consequent moon</u>**

The planets are masses, means charges. Between two planets (two charges) it exist electric fields which polarize and ionize the atmosphere of both of the planets.

These electric fields, if they are intense, create electric arcs, storms that synthesize the water.

It is this process that renews the water on the planets.

> **HYPOTHESE 19 OF NARA**
> **All the water on the planets is made on site.**

This process is also valid for its moon where water would be made if the moon is able to hold an atmosphere containing oxygen and hydrogen.

Even without oxygen, the electrical fields synthesize many other components: methane for example.

It may be noted that all the planets of the solar system with moons (the gaseous giants have many) are the seat of very violent storms.

The Sun, whose moons have all the planets of the solar system, is also the seat of violent storms.

10.14.1 *Origin of water on Earth*

All the water on Earth was made on Earth as previously described.

- the Earth (larger) is the positive charge (+)
- the Moon (smaller) is the negative charge (-)

It can also be noted that thunderstorms are more violent at the equator: where the distance between the Earth and the Moon is the shortest and where the electrical fields are more stronger.

At the beginning the Earth and the Moon were very close, the electric fields were very intense which created many storms that constituted the initial water of the Earth.

If the Moon had at this time an atmosphere with oxygen and hydrogen, the water was made on the Moon.

Even being further, it is the Moon that helps renew water on Earth.

10.14.2 *Water on Mars*

It have been confirmed that Mars had water, so Mars had a moon that broke up to form the asteroid belt:

- under the effect of the tension that Jupiter exerted on that moon of Mars
- or under the action of the collision of a meteorite.

From this moon remain Deimos and Phobos, the tiny moons of Mars, even Ceres and Vesta, gravitating in the asteroid belt.

I even wonder if Vesta, a meteorite with a curious shape is not the meteorite that hit the moon of Mars at the moment when this moon was in addition under a max tension of Jupiter.

The disappearance of the moon of Mars deprived the planet of the source of water renewal: lightning and storms.

From that moment the water on Mars began to evaporate; Mars became a total desert.

Current exploration of the planet has not found fossils. If these fossils never existed, it is because the disappearance of the March moon occurred at a time when the planet was still young.

10.14.3 *The water on Pluto and Charon*

If these stars that are close and close in size had an atmosphere, water was made on these planets. The disappearance of water corresponds to the disappearance of their atmospheres due to their low gravities.

But Pluto and Charon would not they be double planets; instead of a planet (Pluto) around which turns a moon (Charon)

10.14.4 *Water on comets*

Comets being too small to hold an atmosphere, if they contain water, it is because these comets have been torn from a planet containing water.

10.15 The magnetic field of planets

The moons are now electric charges, turning around planets create a dipolar magnetic field: north-south.

> **NARA HYPOTHESIS 20 OF NARA**
>
> **The dipolar magnetic field of a planet is mainly due to its moons.**
>
> **The planets in turn induce a magnetic field on its moons.**

In my opinion, these magnetic fields created by the moons are more important than the dynamo effect whose functioning is always difficult to explain: a liquid nucleus rotating inside the planets.

It can be noted that all celestial bodies without moons - in addition to being dry - are devoid of a magnetic field.

With the exception of Mercury which although having no moon has a magnetic field.

Is the dipolar magnetic field of Mercury not induced by the sun ?

Mars has no moon: there is local magnetism but no dipolar magnetism that disappeared with the disappearance of its moon.

10.16 Is the neutron really neutral

> **NARA HYPOTHESIS 21 OF NARA**
> The neutron is not electrically neutral: it is positive.

Since the neutron is larger than the proton, the neutron is a positive charge relative to the proton which is negative.

The nucleus (neutrons + protons) is globally positive with respect to the electrons.

<u>But how can neutron neutrality be explained</u> ?

Historically the number of neutrons has been determined in relation to the number of protons which is equal to the number of electrons to have a total zero charge.

I will come back to this aspect later.

10.17 Neutronic Hydrogen

According to the preceding remark (neutron having a positive charge) there may be neutronic hydrogen: the nucleus of which would be a neutron instead of a proton.

> **NARA HYPOTHESIS 22 OF NARA**
> There is as much neutronic hydrogen as protonic hydrogen.

10.18 Is the neutron-proton couple unique?

In the formula of gravitation, the variables are: R1, R2 and D

We have seen that when R2 is increased, from a certain size the attraction force on M2 (smaller) decreases as the distance D_0 decreases.

The triplet (R1, R2, D_0) for which the force vanishes is it unique ?

- if yes, it corresponds to the proton and the neutron we know
- if no (if there are several triplets): are the solutions continuous or discontinuous ?
- **if the solutions are discrete, then there are several pairs similar to the proton-neutron. In this case it may have several Mendeleev tables; several chemistries at both quantum and astronomical levels.**

  That is, there would be atoms of galaxies, molecules of galaxies or even galactic amino acids.

  It's a delusion, I concede it, but I agree.

Other presentation on the Internet

Gravitation of Nara - Nara Communal School

https://gravitation-of-nara.com/

Some videos are available on YouTube

Hypothesis of Nara

https://www.youtube.com/watch?v=6Y-XagYN_T0

Les Hypothèses de Nara

https://www.youtube.com/watch?v=gCOy8j1kbrU

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