the general science journal

Planetary Formations are Predicted to be Hollow Spheres by the Solar Protuberance Theory

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Abstract

The Solar Protuberance Theory is an utmost likely process for the origin of our planetary system. In the booklet *"The Solar Protuberance Theory - Our Solar System and the Planetary System Creation"*[5] the theory was explained and the large amounts of evidence confirms the theory at levels near 92% probability. The proto-planets were expulsed out of the sun by an electromagnetic protuberance of which the electrically charged matter became spirally wound about a solar magnetic line. The four positively charged gas-planets became hot loops, due to the mutual repel, until they reached the actual orbits, as the Titius-Bode law describes. The same process happened with the four negatively charged core-planets.
In this paper, the further formation of planets is discussed, starting from the electrically charged loops, until we reach the observed spherical planets. The theory also suggests that the planets are likely hollow spheres, which is fully predicted by the described Solar Protuberance Theory, combined with the law of least action and the occurrence of zero fields inside hollow spheres.

Keywords: proto-planet, sun, protuberance theory, electromagnetism, gravitomagnetism, solar system

1. Introduction

The spiraling motion of free electrons around magnetic lines is a key element of my hypothesis for the formation of planets, having started as an electromagnetic eruption out of the sun, in which a sunspot became the core-planets, and the surrounding material became the gas-planets.

A strong eruption between a solar spot and the surrounding area could have occurred, and the ions would have circulated around a magnetic line four times before these loops would mutually repel when the magnetic line disappeared. That occurred for the (essentially) ionized hydrogen (protons) and in a lower quantity, ionized helium. An equal number of electrons would then have circulated in the same way about the solar magnetic line, whereby matter from a sunspot was expelled simultaneously, carrying heavier elements. Due to the heavier matter, the expelled velocity was much lower than that of the gas-side.

Jupiter's kinetic energy corresponds perfectly with the kinetic energy provided by a thermal explosion from the sun at also corresponds with the sun's internal temperature.

The result of the calculations gives the relative distances between the planets caused by the electromagnetic repel, which corresponds to the observed orbits as expressed in the Titius-Bode law.

The exploded solar spot can be fully be associated to the electromagnetic forces of the electrons, which resulted in the heavy elements from the sunspot, and it is easy to prove that the four small planets come from the same explosion, because the group of core-planets and the group of gas-planets result in the electric balance.

The key is that the four large planets and the four small planets are assimilated to a calculus of balance of inertial moments: the large planets are assimilated to the protons, and the small planets are assimilated to the other elements provided by the sunspot, and negatively ionized: the available electrons moved along with that matter about the solar magnetic field line.

Their inertial balance between the four gas planets and four core planets is perfect, and based upon the mass of the four large gas planets combined, we deduced perfectly the mass of the four small rocky planets together, as explained in the booklet.

In the Appendix, we recall the main findings of the several papers whereof the booklet consists.

2. Reshaping of the electromagnetically charged loops into a cylinder-like proto planet.

As confirmed by observational data that fits extremely well with the Solar Protuberance Theory, the group of four proto gas planets were spirally wound about a solar magnetic line, before they got disrupted into electromagnetically charged loops and became individual proto gas planets.
The four loops were all positively charged, and thus repelled mutually, which resulted in their projection into space, at the final calculated orbits that comply extremely well with the observed ones, when considering the mutual orbits proportionally.
The same happened with the core planets.

When the loops became individual proto planets, they were still electrically charged, and consequently, the individual particles also repelled, so that the loops became larger in size, less dense, and cylindrically expanding rather than radially. Indeed, the radial distance between the opposite parts of the loop is small compared with the distance between the particles within the loop itself. However, the Lorentz force caused by the opposite directions of motion of the loop's opposite parts were sufficient to flatten the interior.

Thus, the repelling forces inside the loop will transform its shape in a more cylindrical, thick-walled proto planet, however still totally hollow.

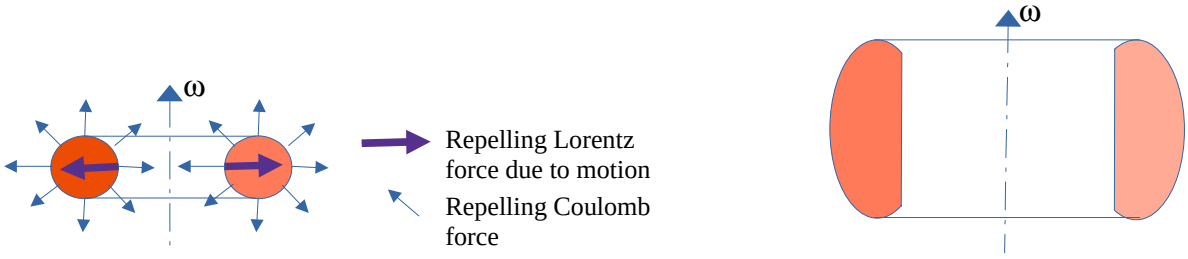

Fig 1.1. Schematic evolution: the electrically charged loop expands due to the Coulomb's repel and flattens internally due to the Lorentz force of the charges at opposite velocities.

3. Law of least action reshapes the proto-planet to a hollow sphere.

Let us make the following consideration: an fluid object in space, electrically charged or not, will always reshape until the forces become balanced or zero.

In the present case, it means that particles will continue to move under the influence of Coulomb forces, Lorentz forces and gravitational forces as long as either they become a solid amalgam, or get balanced forces or resulting forces equal to zero.

As a matter of fact, we know that the electric and gravitational fields in hollow spheres are exactly zero, more exactly, they are balanced out in such way that any matter placed inside a hollow sphere doesn't move at all. Hence, as long as the spherical shape isn't reached or the amalgam became solid, the particles will continue to move.
When taking into account the additional inertia effect due to rotation, the hollow sphere will we very slightly flattened.

Since the proto planets were initially hollow at the solar eruption and since they were spinning due to the formation process, there is no doubt that they essentially remained hollow.

Over time, the solar wind will send enough charged particles in order to make the proto planets electrically neutral.

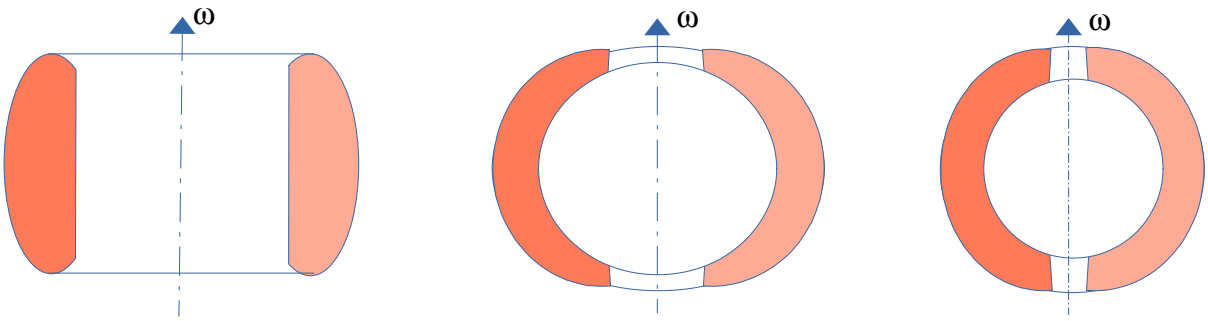

Fig 1.2. Schematic evolution: the electrically charged cylindrical loop reshapes into a hollow with balanced forces resulting in an internal zero force, due to the law of least action.

4. Conclusion.

In the booklet *"The Solar Protuberance Theory - Our Solar System and the Planetary System Creation"*[5], I obtained a large amount of evidence by a high probability of occurrence, by the chemical content of the planets, the excellent fit between Jupiter's kinetic energy and the sun's thermal energy, the excellent fit between the calculated orbits and the actual orbits, the excellent momentum balance between the set of gas planets and the core planets, which fits the theory remarkably. See the Appendix for an extended summary.
The present prediction of hollow planets due to the formation by the Solar Protuberance Theory, combined with the law of least action, gives an additional validation possibility.

5. References.

See page 12.

Appendix

Evidence for the Planetary creation according to the Solar Protuberance Theory

A.1. Kinetic energy of Jupiter and the thermal eruption energy from the Sun.

Forces acting on the cloud – Gas law, gravitation and kinematics

Immediately after the eruption, the cloud took place in a zone, nearby the sun. We consider the cloud in the equator plane for the moment, although the ejection probably occurred at another latitude. Fig. A.1 shows a very general situation.

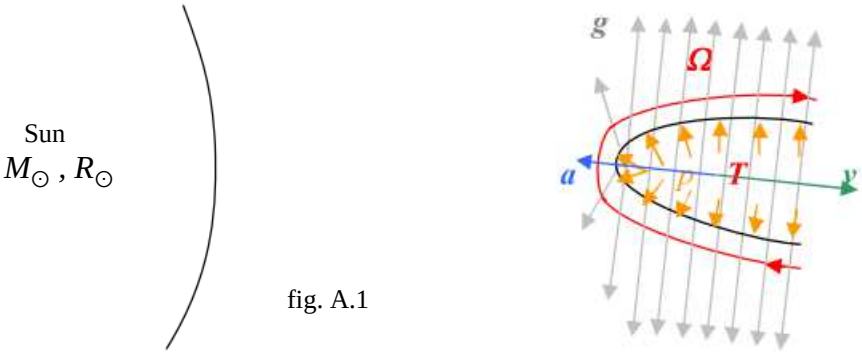

fig. A.1

The influences on the cloud are:

a. The initial velocity v_0, which must have been below the escape velocity of the cloud.
Hence, $v_0 < (GM_\odot/R_\odot)^{-1/2}$.

b. The pressure p of the gasses and the vapour, which is responsible for the further expansion of the cloud, in all directions. As a matter of fact, the initial velocity is generated by this internal pressure.

c. Thirdly, we have got the temperature, which is related to the pressure as well.

d. The electromagnetic force from the sun, as seen in chapter 2.

e. The gyrogravitation force, due to the sun's attraction and rotation, and due to its orbit speed in the Milky Way.

f. Finally, the ejected mass, which is causing a gravitational contraction.

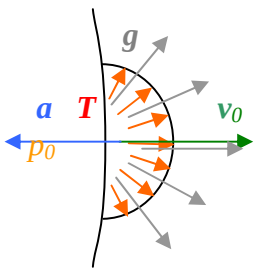

fig. 3.2

The explosion area is shown in fig. A.2.

The equation of the kinetic and the thermodynamic energies results in [13]:

$$^1/_2 \; m_a \langle v^2 \rangle = {}^3/_2 \, k \, T \qquad \text{(A..1)}$$

This equation is valid for the average velocity $\langle v \rangle$ and the mass m_a of one gas atom or molecule.
T is the temperature of the eruption which is close to the one of the sun.
k is a physical constant. The sun's temperature is known, and the total expulsed mass can be estimated.

For one mole of gas, equation (3.1) becomes $^1/_2 \; m_m \langle v^2 \rangle = {}^3/_2 \, N_A \, k \, T$ where

N_A = Avogadro's number $= 6 \times 10^{23}\ mole^{-1}$. This is the number of gas atoms in one mole.

So, $\langle v^2 \rangle = 3\ N_A\ k\ T / m_m$

And the gasses' velocity is $\langle v \rangle = (3\ N_A\ k\ T_\odot / m_m)^{-1/2}$. (A.2)

k = Boltzmann constant $= 1.38 \times 10^{-23}\ J/K$

G = universal gravitation constant $= 6.67 \times 10^{-11} N\ m^2\ kg^{-2}$

$M_\odot = 2 \times 10^{30}\ kg$: is the sun's mass.

$R_\odot = 0.7 \times 10^{9}\ m$: is the sun's radius.

$T_\odot$ is the sun's temperature at the location of the eruption. It is clear that the eruption of a planetary system must be a very exceptional event. The core, with a radius of $^1/_4\ R_\odot$ has a generally accepted temperature of $1.5 \times 10^7 K$. Also the corona, outside the sun's surface has about the same temperature. As a first approximation of the exceptional eruption temperature we shall assume that it stayed below $1.5 \times 10^7 K$.

m_m equals the mass of one mole of gas particles, which can be hydrogen isotopes, deuterium and helium. Therefore we check the composition of our planetary system in Tab. A.1. and Tab. A.2 (page 8).

Only the four large outer planets have got much hydrogen (91%) and helium (9%). When the eruption took place, the hydrogen was ionised before becoming bi-atomic molecules.

Hence, the average mass m_m is $0.91\ g + 4 \times 0{,}09\ g = 1.27\ g/mole$.

The average velocity $\langle v_h \rangle$ at which the gas particles move inside a gas bubble of the sun can be found out of equation (A.2) :

$$\langle v_h \rangle = 5.4 \times 10^5\ m/s\ ,$$

and the directions at which these hydrogen gas molecules move are random, because of the many collisions in the gas. A freed molecule however reaches such speeds.

Indeed, the gravitational escape velocity $v_g = -(GM_\odot/R_\odot)^{-1/2}$ will counteract this speed, in order to get a maximum possible initial velocity of :

$$v_{max} = (3\ N_A\ k\ T_\odot / m_m)^{-1/2} - (GM_\odot/R_\odot)^{-1/2} = 1.07 \times 10^5\ m/s \qquad \text{(A.3)}$$

out of the sun's surface. In fact, in order that the planets wouldn't leave the solar system, the actual eruption velocity v_0 must remain below zero in the equation (A.3). Then, the corresponding solar eruption temperature must have been significantly below $10^7 K$.

Does this fits the creation of our planetary system ? – A sunspot erupted with the hot cloud

A pregnant question is to know how big the gas bubble should have been in order to eject a mass as large as the sum of all our planets, asteroids, and gasses of our planetary system.

To answer that question, we need to consider that the surface temperature of the sun is only $T_{s_\odot} = 5.8 \times 10^3 K$. If an eruption took place, colder surface matter will be ejected by erupting hot gasses laying below that surface. And as we know, the inner planets contain lots of heavier metals such as iron, just as probably sunspots do. Indeed, sunspots are definitely considered as predictors of solar activity, suggesting metallic content.

Thus, we should consider an enormous internal gas bubble blowing away a sunspot out of the sun's gravitation area. We can estimate the sunspot mass m_{sp} as the sum of the inner planets and the cores of the outer planets, which equals $1.2 \times 10^{25}\ kg$ and constitutes only $0.5\ \%$ of the total mass of the planets; indeed, the gas bubble is then the mass of hydrogen and helium m_h in our planetary system, which is $2.6 \times 10^{27}\ kg$.

This means that the order of magnitude of the final eruption speed v_0 will nearly be $10^5\ m/s$ (order of magnitude). In fact, we have no confirmation of the real eruption temperature. It is however obvious that if we set $T_\odot < 10^7 K$ in (A.3), the final eruption velocity will quickly tend to zero.

In literature about nuclear fusion, a temperature of $10^8 K$ is mentioned to make carbon by fusion of helium. Even hotter temperatures are needed to make possible the fusion of other nuclei and to finally produce iron, which is the final step in the fusion process, as the atomic number equal to 26 makes a peak of the binding energy curve. Higher fusion steps would consume instead of create energy.
The chosen temperature $T_\odot = 1.5 \times 10^7 K$ is in that way not overestimated.

What we have found out until now is:

A solar eruption left the sun's surface at an initial speed of less than $10^5\ m/s$, assuming an initial cloud temperature of $1.5 \times 10^7 K$. In any case, the minimum temperature must have been of order $10^7 K$.
During the eruption, huge masses of hydrogen and helium ions snatched other colder matter of a sunspot, which was then expelled as well.

The rotation period of Jupiter – The rotation period fits the model

Jupiter, the largest planet and which resembles the most the original erupted cloud can be used for some control calculations, at least, to verify the validity of the order of magnitude of the model. This should define the final credibility of the model as a whole.

The eruption took place in a magnetic field. This made the hydrogen ions rotate screw wise at a certain speed, probably the same velocity as Jupiter's rotation velocity.

The rotation velocity of Jupiter is 9,9 hours.
Using Tab A.1 (page 8), the equatorial velocity at Jupiter's surface is :

$$v = \pi\, 1{,}4.10^8\ m / (9{,}9\ .\ 3600\ s) = 1{,}26.\ 10^5\ m/s$$

The overall average velocity has the order of magnitude of $10^5\ m/s$.

This velocity complies with the assumed eruption velocity of (A.3) of about $10^5\ m/s$.

The orbit velocity of Mercury – The orbit velocity fits the model

This initial velocity and the existence of the initial spirally screwing cloud suggest that we can split the velocity into two components: $(1/2)^{1/2}$ of the velocity was rotating tangentially and $(1/2)^{1/2}$ of the velocity was a speed along the guiding magnetic field line.

We also know that the radial speed became an orbit speed and that the tangential component has got a strong induced magnetic speed reduction. The same flow velocity caused the implosion in point a that was followed by the mass ejection in a. The orbit speed of Mercury would end up at less than $0{,}7.10^5\ m/s$ when using our model, due to energy losses during the implosion. Mercury's orbit velocity is now about $0{,}5.10^5\ m/s$. This value complies quite well with the model.

The speed along the guiding magnetic field line cannot be used to verify the compliance of the model with other planets, because the spatial field line orientation of that moment cannot be determined.

A.2. The formation of proto-planets from an electromagnetic solar eruption.

As explained in the paper *"Curiosum : The Titius-Bode law shows a modified proto- gas-planets' sequence"* [5], the solar protuberance was an eruption in which all types of the planet's atoms were already present. It caused the ejection of matter, about 0,15 % of the sun's total mass, at a speed of about 10^5 *m/s* .

The hypothesis of a solar protuberance implies that the planets were created from one eruption only, but consisted of two (successive or simultaneous) eruption shocks: a first eruption shock of mainly hydrogen and some helium at one side of the protuberance (proto-Uranus, -Neptune, -Saturn, -Jupiter), followed by an implosion-explosion shock due to the hydrogen shock wave hitting a solar spot at the other side of the electromagnetic force line of that protuberance (proto-Mercury, -Venus, -Earth, -Mars).

How did the protuberance exactly split-up into proto-planets? Therefore we have to look at fig.A.3.

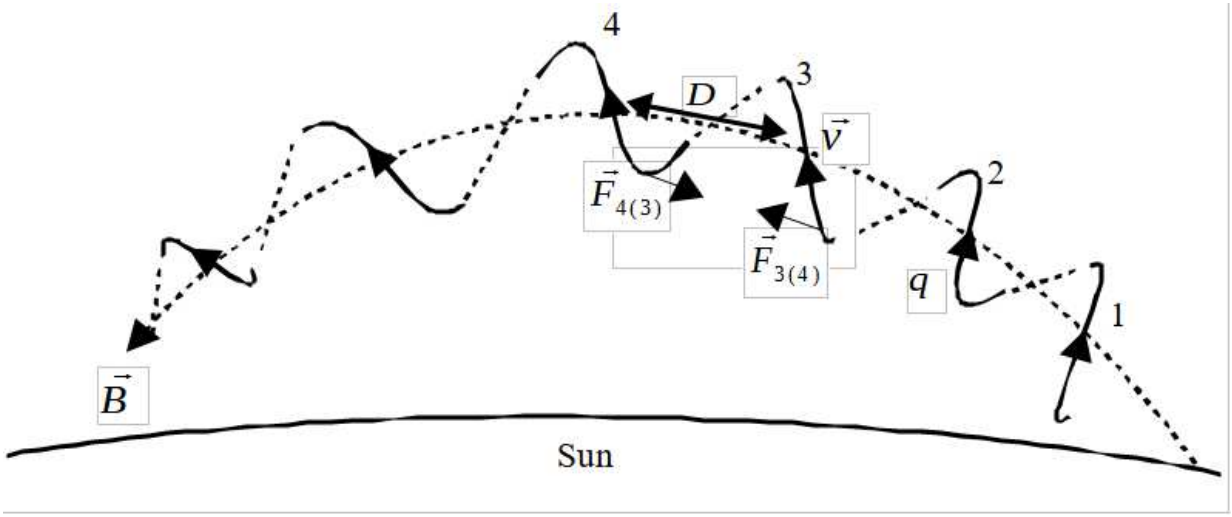

Fig.A.3

The Lorentz forces from the other proto planets upon the proto-planet loop 1 can be written as follows:

$$F_1 = \sum_{i=2}^{4} F_{1(i)} = \frac{q_1(36q_2 + 9q_3 + 4q_4)}{144\,\pi\,\varepsilon_0 D^2}$$

and the acceleration a_1 of the part 1 with mass m_1 is : $a_1 = \frac{F_1}{m_1}$ (A.4)

Analogically, the forces upon the proto planets 2, 3, and 4 are respectively:

$$F_2 = \sum_{i=1,3,4} F_{2(i)} = \frac{q_2(-4q_1 + 4q_3 + q_4)}{16\,\pi\,\varepsilon_0 D^2}$$

$$F_3 = \sum_{i=1,2,4} F_{3(i)} = \frac{q_3(-q_1 - 4q_2 + 4q_4)}{16\,\pi\,\varepsilon_0 D^2}$$

$$F_4 = \sum_{i=1}^{3} F_{4(i)} = \frac{-q_4(4q_1 + 9q_2 + 36q_3)}{144\,\pi\,\varepsilon_0 D^2}$$

With (A.4), the acceleration of the parts of the protuberance can be calculated, taking in account the electrical charges, which are directly proportional with the known planetary masses.

		SUN	MERCURY	VENUS	EARTH	MARS	JUPITER	SATURN	URANUS	NEPTUNE	PLUTO
Mass	(10^{24}kg)	*1989000*	*0,33*	*4,87*	*5,97*	*0,642*	*1899*	*568*	*86,8*	*102*	*0,0125*
Diameter	(10^3 m)	*1390000*	*4879*	*12104*	*12756*	*6794*	*142984*	*120536*	*51118*	*49528*	*2390*
Density	(kg/m^3)		*5427*	*5243*	*5515*	*3933*	*1326*	*687*	*1270*	*1638*	*1750*
Rotation Period	(hours)		*1407,6*	*-5832,5*	*23,9*	*24,6*	*9,9*	*10,7*	*-17,2*	*16,1*	*-153,3*
Distance from Sun	(10^9 m)		*57,9*	*108,2*	*149,6*	*227,9*	*778,6*	*1433,5*	*2872,5*	*4495,1*	*5870*
Orbital Period	(days)		*88*	*224,7*	*365,2*	*687*	*4331*	*10747*	*30589*	*59800*	*90588*
Orbital Inclination	(degrees)		*7*	*3,4*	*0*	*1,9*	*1,3*	*2,5*	*0,8*	*1,8*	*17,2*
Orbital Eccentricity	Eccentricity		*0,205*	*0,007*	*0,017*	*0,094*	*0,049*	*0,057*	*0,046*	*0,011*	*0,244*
Axial Tilt	(degrees)		*0,01*	*177,4*	*23,5*	*25,2*	*3,1*	*26,7*	*97,8*	*28,3*	*122,5*

Tab. A.1

In table A.1 , the strange axial tilt of Uranus and its unexpected negative rotation period brought me, in the former paper[5], to the investigation of the protuberance's shape. Neptune did not play any significant role in this investigation.

As shown in the table A.2, Uranus has a remarkable matter composition, compared with the other gas planets.

Element (wt%)	Atomic Mass	Jupiter	Saturn	Uranus	Neptune	Pluto
H	1	*90,00*	*93,00*	*59,00*	*74,00*	
He	2	*10,00*	*3,00*	*10,00*	*22,00*	
Rocky core	(estimate) 25		*3,00*	*30,00*	*3,00*	*70,00*
Water	10					*30,00*
Total (wt%)		*100,00*	*99,00*	*99,00*	*99,00*	*100,00*
Total mass (10^{24}kg)		*1899*	*568*	*86,8*	*102*	*0,0125*

Tab. A.2

Thus, the order-sequence of the gas-planets' orbits, compared which the sequence of their tilts and their composition, did me think of some inversion between the planets, compared with the original combination of proto-planets.

A.3. Probable inversion of the planets Uranus and Neptune during the process.

The acceleration of the proto planets, as defined for proto planet 1 in (A.2), can be associated to the following: I connect the condition for the direct proportionality of the accelerations with the orbit radii to the following: the physical law (for low velocities)

$$v^2 = GM / r \qquad \text{(A.5)}$$

must have been able to catch the planets into orbits, while they decelerated due to the increasing distance to the sun, and thanks to the bending path of the ejected proto-planets, causing an orbital path by the sun's gravitation.

For simplicity, I have put the figures of the electric charges of the proto-planets equal to the actual masses' data of the planets, multiplied with a unknown constant factor *k*. The reasons are firstly that it is probable that the hot cloud was almost totally ionised and secondly that the value of the distances D between the protuberances' parts are not known.

The results for the initial acceleration of the proto-planets' are multiplied with an unknown constant factor *p* as well.

Interpretation of the acceleration's sign: The sign does not matter

Indeed, the sign of the acceleration is of no importance, because the path can initiate an orbit at both sides of the sun. A negative (positive) sign for the acceleration will cause a prograde (retrograde) orbit, -or inversely-.

Even when the orbits initiate in retrograde way, these orbits will turn back into prograde orbits, due to the action of gravitational *gyrotation*, (the Heaviside's [6] second gravity field which is motion-related) as explained in my paper *"A coherent dual vector field theory for gravitation"* [1]. This swivelling until a prograde direction is produced for any mass that is moving in the spinning gravitation field of the sun, and the conclusion was that the prograde-wise spinning sun will automatically generate prograde orbits of the planets. During this *angular swiveling*, the orbit's diameter remains practically unchanged, and the retrograde orbit turns towards a prograde orbit, more or less about a virtual axis that is laying in the sun's equatorial plane.

Probable initial sequence

We found the following initial proto planet sequence as being interesting to investigate. Neptune got only 3% of rocky matter, just as Saturn. At the other hand, the mass-sequence (gradually from very large mass to small mass) of the actual gas planets sequence is surprising. Maybe we should try to put Neptune near Jupiter, in order to get the more another protuberance sequence: proto-Jupiter, -Neptune, -Saturn, -Uranus. This makes sense regarding their absolute (not relative) helium and rocky core content, which are then successively decreasing (see table A.1). Proto-Uranus, of which its heavy rocky core is then at an extremity of the protuberance.

The result of that hypothesis is given in table A.3.

	Proto planets	M [kg] (xE24)	q [C] . k	a [m/s²] . p
1	**Jupiter**	1899	1899	63,41
2	**Neptune**	102	102	-327,33
3	**Saturn**	568	568	-122,49
4	**Uranus**	86,8	86,8	-201,13

	Original sequence		Final sequence
		1	**Jupiter**
1	**Jupiter**	**2**	**Saturn**
2	**Neptune**		
3	**Saturn**	**3**	**Uranus**
4	**Uranus**		
		4	**Neptune**

Tab. A.3: Initial proto planet's sequence that fits with the final orbits due to the mutual electromagnetic repel of the proto planets.

In the paper *"How did the Gas Planets Form from Our Sun?"*, we used very simple and straightforward premises and it was found that the probability of this sequence is 92% with respect to the actual planet orbits.

	Proto planets	M [kg] (xE24)	q [C]	F (N)	a [m/s²]	r (xE9)	r/a
				mutually comparative figures only			
1	**Jupiter**	1899	1899	120417,7	63,41	778,6	12,28
2	**Neptune**	102	102	-33387,15	-327,33	4495,1	-13,73
3	**Saturn**	568	568	-69572,9	-122,49	1433,5	-11,7
4	**Uranus**	86,8	86,8	-17457,65	-201,13	2872,5	-14,28
					Certitude by	***St D =***	**92 %**

Tab. A.4: The best fit for the proto- gas planets, where 'q' is the electrical charge, 'F' the Coulomb force between the considered proto-planet versus the other proto-planets, "a the corresponding acceleration, 'r' the actual orbit radius, The relative standard deviation gives a probability fit of 92%.

If the positive sign for ***r/a*** in the Tab A.4 means a prograde orbit, the negative sign means a retrograde orbit. However, I showed in a former paper[1] that any retrograde orbit swivels into a prograde orbit in time, due to the transmission of the Sun's angular momentum to the surrounding space, by the means of gyro-gravitation [1].

A.4. Evidence for the simultaneous formation of the gas- and the core planets.

Let us analyze the conservation of momentum of both the set of four gas planets and the four core planets, at the moment of their creation, when electrically charged. Therefore, let us consider Tab.A.1 again.
At one side of the protuberance, the ionized hydrogen leaves the surface of the sun and screws in the direction of the other side. The ionized hydrogen, and some ionized helium are only protons and neutrons.

The total electric charge is directly proportional to the sum of the gas-planets' masses. According to the table A.1 this total mass equals $M_{gas} = 2.66\,x10^{27}\,\mathrm{kg}$. We consider that most of the mass consists of protons. All of the mass of the proto-gas-planets is made of gasses. Thus, we can say that $M_{gas} \approx M_p$, where M_p is the mass of the corresponding ionized gasses related to the proto-gas-planets.
At the other side of the protuberance, a same quantity of negative electric charge is appealed for by the ionized hydrogen and helium.
Let us start with the hypothesis that at that place, the surface of the sun was a sunspot. We will check now if this hypothesis fits with the observed data.

The quantity of negative electric charge at the sunspot side must be the same as the positive electric charge at the hydrogen side of the protuberance.

Now, we look what happened just before the eruption. The total hydrogen mass involved at one side of the magnetic path is given by $M_p = 2.66\,x10^{27}\,\mathrm{kg}$. And all that mass is made of protons only. At the sunspot side, we have lots of iron and many other chemical elements.

The sunspot has been hit by the electric flow of the electrons. Indeed, the ionized hydrogen did not hit the sunspot, but only the electrons did. The electrons followed a spirally path, very close to the magnetic path of the protuberance, while the ionized hydrogen followed a widely spread spirally path along the same magnetic path.

The conservation of momentum defines that the momentum of the erupted mass of electrons M_e must be equal to the momentum of the mass M_s of the erupted sunspot matter:

$$M_e v_e = M_s v_s \qquad \text{(A.6)}$$

Thus, the hypothesis that the electrons has hit the sunspot and so created a pure mechanical process of impulses, will be checked here.

We know the velocity of the ionized hydrogen from "*Are Venus' and Uranus' Tilt of Natural Origin?*" at the moment of eruption, which is $v_p = 2.5\,x10^5\,\mathrm{m/s}$ (see Appendix). This velocity could be deducted from the sun's temperature only, although the quite low accuracy we have got from it. Therefore we have taken the real velocity of the gasses in Jupiter, of which I believe that it is as close as possible from the original protons' velocity.
The velocity of the electrons has to be the same, because the ionization of the hydrogen occurred only after the eruption, and has then split the protons and the electrons. Since only the temperature of the sun is responsible for the velocity of the hydrogen only, both the protons and the electrons along the magnetic path had the same velocity.
Hence : $v_e = v_p$.

In the paper "*Are Venus' and Uranus' Tilt of Natural Origin?*" [5] I also calculated the approximate velocity of the core planets. Since the accuracy of that calculation is too low, we shall use the real velocities of the core-planets here. However, this does not harm the validity of the reasoning in this paper.
The average orbital velocity of the core-planets represent the velocity of the erupted sunspot. Thus, by using the figures of Tab. A.1, and by applying the planets' mass-related load factors, we find an average velocity of about $v_p = 0.3\,x10^5\,\mathrm{m/s}$.

And finally, the total mass M_e of the electrons that are involved is :

$$M_e = M_p \frac{m_e}{m_p} \qquad \text{(A.7)}$$

where m_e and m_p are the elementary masses of the electron and the proton.

Hence, $$M_e = 2.66\,x10^{27}\,\frac{m_e}{m_p}\,\text{kg} = \frac{2.66\,x10^{27}}{1838}\,\text{kg} \qquad \text{(A.8)}$$

It is possible to calculate the total mass of the ejected part of the sunspot M_s out of (A.6), combined with (A.8):

$$M_{sunspot} = \frac{2.5\,x10^5\ \text{m/s}\ x\ 2.66\,x10^{27}}{1838\ x\ 0.3x10^5\ \text{m/s}}\,\text{kg} \qquad \text{(A.9)}$$

or

$$M_{sunspot} = 12\,x10^{24}\,\text{kg} \qquad \text{(A.10)}$$

which indeed is, with a very good approximation, the sum of the masses of the core-planets, which is $11.8\,x10^{24}\,\text{kg}$. The velocities used in (A.9) are correct within a small error margin. The asteroid belt should be considered as a part of the gas-planets' composition, but its mass is marginal anyway.

What can we deduct about the sunspot?
In a sunspot, there are many different chemical elements present in different quantities. As a matter of fact, the equation (A.10) implies that the sum of the core-planets is a good representation of the content of a sunspot. When we look at Tab A.5 , we have an idea of the elements which are present in our core-planets.

Element (wt%)	Atomic Mass	Mercury	Venus	Earth	Mars
Fe	26	*64,47*	*31,17*	*32,07*	*9,50*
O (bound)	8	*14,44*	*30,90*	*30,12*	*45,00*
Si	14	*7,05*	*15,82*	*15,12*	*25,00*
Mg	12	*6,50*	*14,54*	*13,90*	*17,00*
S	16	*0,24*	*1,62*	*2,92*	
Ni	28	*3,66*	*1,77*	*1,82*	
Ca	20	*1,18*	*1,61*	*1,54*	*1,50*
Al	13	*1,08*	*1,48*	*1,41*	
Total (wt%)		*98,62*	*98,91*	*98,90*	*98,00*
Total mass (10^{24}kg)		*0,33*	*4,87*	*5,97*	*0,642*

Tab A.5

A.5. Conclusion : good probability of a simultaneous creation of all our planets.

From the former papers followed that the solar protuberance is a valid hypothesis as the origin of the formation of our planets. There is a strong probability that the gas-planets came out of the same protuberance, and the sole needed data was the sun's internal temperature, which is given by the fusion process of hydrogen to helium. I have given the configuration of the proto-gas-planets' sequence inside the originally erupted cloud, which was different from the one now. The calculation of this sequence came out as the only possibility out of 24 theoretical sequences. And this configuration solved the origin of the Titius-Bode law.

We found evidence that while the core-planets have been created by the impact of the electrons of the protuberance, the gas-planets must have been created by the impact of the same number of protons. Thus, the same protuberance process created all the planets during the same eruption process, but the group of core planets very probably came out

of a sunspot at one side of the protuberance and the group of gas-planets very probably came out the sun's hot surface at the other side of the protuberance.
By the addition of the core planets' chemical content, we obtained the composition of a typical sunspot.

If the hypothesis of a huge protuberance is valid, it also implies that if we discover exo-planets somewhere (generally these are large gas-planets) , there is also a good chance to find core-planets as well.

A.6. References and interesting lecture.

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