Advanced Physical Research
Vol.2, No.1, 2020, pp.5-19

ON THE THEORETICAL MODELLING OF ORIGIN OF THE SOLAR SYSTEM

Shaad P. Sufi

Astronomy Society, Foundation Public School, Karachi, Pakistan

Abstract. This paper contains a scientific step by step summary of an possibility of events leading to the formation of the solar system and life on Earth with further possible explanations of the excess moons of Jupiter, the presence of water on Europa, Venus, Mars and Earth, the elliptical orbit of planets in the solar system, excess amount of Nitrogen on Earth, the origin of carbon and organic compounds on Earth, the existence of craters on the moon, the presence of disks around gas giants and the presence of carbon monooxide on Mars, Venus and Earth. The process is divided into three stages explained in detail, each of which gives a possible explanations to the above mentioned topics.

Keywords: *Theoretical model, solar system, formation of Earth.*

Corresponding Author: *Shaad P. Sufi, Astronomy Society, Foundation Public School, Block 6, PECHS, Karachi, Pakistan, e-mail: shaadpyarali@ gmail.com*

Received: *28 March 2020;* ***Accepted:*** *09 May 2020;* ***Published:*** *30 June 2020.*

1. Introduction

In 1871, Sir William Thomspon suggested the collision hypothesis which stated that , "when two great masses come into collision in space, it is certain that a large part of each is melted". This idea is the essense of this paper on explaining how the solar system formed, identied in this paper as the Hyperstate division (Batygin *et al*., 2008; Lineweaver, 2001; Tegler, 2007). Among the multiple factors explained of the origin of the solar system in this paper, the paper also brings a new perspective on the origin of the Earth-moon system. In Robin Canup's paper ,"Origin of the Moon in a giant impact near the end of the Earth's formation", he has stated that "identifying impacts capable of yielding the Earth-moon system has proved dicult". Furthermore we observe that the initial hypothesis that the "moon has formed from debris ejected by a large off-centre collision with the early Earth"does not agree when simulated on super computers as D J Stevenson's work in "Origin of the moon- The collision hypothesis" states, "efforts were made to simulate giant impacts using three-dimensional hydrodynamic codes on supercomputers however...a sober reflection on the problem after two years suggests that a lot more work is needed.", indicating that the collision hypothesis suggested does not fully agree with the possible origin of the moon (Bevilacqua *et al.*, 1980; Whipple, 1992; Lorenz, 1997; Brown *et al.*, 2010). This paper gives an a unified and chronological account on what might've happened through billions of years for our solar system to reach its current state, from the origin of mercury to the origin of the kuiper belt, ring around gas giants to the origin of life on Earth through DNA formation, this also includes suggesting the collision hypothesis , or hyperstate division as I name it to suggest the origin of the moon and its existence as a natural satellite of Planet X, explained in the paper, which later evolved to be our planet Earth. Through explaining

this unified account you may understand the possibly simple yet extensive series of events given chronologically and supported by its comparative agreement with the current state of the solar system today (Sackmann *et al*., 1993; Kargel, 2004; Schroder *et al*., 2008).

2. Stage I

The first stage of this theoretical model explains the elliptical orbit of planets, the origin of mercury and its low temperature compared to Venus. The sun produces its energy by the process of nuclear fusion. It takes a great amount of time for a reactive Hydrogen atom in gaseous state to reach the surface of the sun from the core (Hayes, 2007; Neron de Surgy *et al.*, 1997; Canup, 2005; Stevenson, 1987). The probability exists that a hydrogen atom may involve in a thermodynamic system with the boundary of the sun in which it transfers energy to the other particles of the system; reaching the core the hydrogen atom may not have the amount of energy required to coalesce with other atoms. Therefore the gaseous atom forms a interaction between other atoms. Atoms with alike thermodynamic conditions form similar interactions which results in an exothermic process of the formation of bond between the hydrogen atoms forming hydrogen molecules. The hydrogen molecules together form clumps by the presence of Vander-Waal forces between other hydrogen molecules. These clumps hinder the fusion of other highly energetic hydrogen atoms on the surface of the sun by coating a fraction of the circular area of the surface. The collision of highly energetic gaseous atoms, from all present dimensions, to the structures formed forms a differential thermodynamic system by the transfer of the energy in energetic atoms to the partially stable structures (Canup, 2001; Bottke *et al.*, 2005; Agnor, 2006). The energy transferred by the gaseous atoms allow the hydrogen molecules to fuse over time to form helium atoms. The transfer of the energy from the energetic hydrogen atoms is proportional to the rate of fusion of the hydrogen molecules in the structures to form helium atoms. This process is repeated for the rock based structures of helium atoms where general formula for elementary fusion remains constant. The average atomic number of the atoms/molecules of the rock based structures is always proportional to the energy required for the fusion of atoms/molecules. This general formula implies that if the average atomic number of the rock based structures, which are composed of fusion of elements, increases to a certain limit, the process of fusion of the atoms/molecules in the structures may not continue. Hence the energy transferred by the energetic gaseous hydrogen atoms are stored in the structures. After a certain amount of energy is stored in the structures, the internal gravitation of the structures increases at a high rate. This process decreases the gravitational attraction of the structure to the Sun, Hence the vibrational energy of the heavy structures increase until the gravitation between the two bodies reaches its minimum value R. At this stage the structures withholds the amount of energy required to escape the gravitational field of the Sun. The potential energy stored in the structure is now converted into kinetic energy. The body composed of heavy elements and compounds gains acceleration. The rate of acceleration of the structure decreases over time as the total energy of the body decreases. The ejection of the structure from the body forms a sunspot on the Sun. As the total energy of the body reaches a low value the gravitational effect of the sun on the body increases (Chapman, 1996; Fischer *et al.*, 2014; Izidoro *et al.*, 2014). At this point the temperature of the structure remains on average. The linear acceleration away from the Sun is now, by the gravitation of the

Sun, converted into centripetal acceleration with the Sun as the center of the orbit of the structure. As the distance of the structure to the Sun is low, the temperature of the structure is effected by the Sun's temperature. Over time this process is repeated and causes the formation of heavy metallic or non-metallic structures and various sized sunspots on the surface of the Sun. The ejection radius of all the structures are averagely space between the average orbits, therefore the elementary structures attract each other through an effective gravitational pull to form a combined body with an identical distance from the Sun. The giant body formed by the fusion of all the basic elementary structures is called Mercury (Chambers, 2013; Fogg *et al.*, 2007; Malhotra, 1995; Morbidelli, 2000). The theoretical modelling of the origin of mercury is the process which identifies the presence of a trace atmosphere in the planet. This process also explains the reason due to which the temperature of Mercury is less than that of Venus, since the metallic compounds forming the structure of Mercury are actually high energy ejections of relatively low temperature compound from the sun and the reason why Planet mercury has no natural satellites as the gravitational pull near the sun does not allow multiple astronomical bodies to form Since the fusion on the surface of the Sun caused the rock-based structures to achieve maximum stability. This theoretical model also explains the presence of Hydrogen and Helium molecules in planet Mercury. As the energy provided by highly energetic atoms of the Sun increased most elements fused together however the elements in the core of the structures were not provided by enough energy to fuse the helium atoms therefore the scarce presence of the helium atoms are derived from the following model. The percentage of hydrogen present in Mercury and the sunspots on the surface of the sun indicate the ejection of mercury from the Sun (Hsieh *et al.*, 2006).

Table 1. This table represents the composition of Mercury according to the hypothesis of its formation. The elementary composition of Mercury supports its ejection from the sun.

Element	Percentage Composition
Oxygen	42
Sodium	29
Helium	6
Potassium	0.5
Hydrogen	22
Hydrogen	trace

A. Results of the Ejections

The ellipse orbits of the planetary bodies in the solar system were prominent before the ejections of the substitute rock-based structures of planet Mercury but the ejection of Mercury in sub-episodes has caused the formation of Earth, Mars, and Venus. According to the laws of Conservation of linear momentum, the bombardment of a unified system results in the formation of multiple bodies which travel in opposite directions to conserve the momentum before and after the reaction has taken place. The ejections of the substitutes of the planet mercury implied the laws of conservation. As the rock-based structures of light elements were ejected from the Sun, those structures travelled in the opposite direction to the Gravitational field of the Sun and therefore caused the Sun to move in the opposite direction. The mass m of Mercury was ejected

with a velocity *V*. The mass *M* of the Sun therefore moved against the direction of substitute ejections of Mercury with the velocity ~ *v*. This process was repeated for every ejection from the planet and therefore had a non-negligible effect on the orbit of the planets.

$$-VM + Vm = 0$$

All the objects in the Solar system are attracted to the sun and therefore the non-negligible movement of the Sun from its original position relative to the planets was altered. The planetary bodies gravitationally attracted to the Sun were caused to move towards the Sun. This movement magnified the ellipse orbit of all the planets and caused The Kuiper Blet beyond the planets to decrease the radius of its centripetal motion around the Sun (Krasinsky et al., 2002; O'Brien *et al.*, 2007; Edgar *et al.*, 2004; Petit *et al.*, 2001).

3. Stage II

The second stage of the theoretical model explains the origin of the asteroid belt, the craters on the moon, the presence of disks around Jupiter, Saturn, Uranus and Neptune along with the excessive moons of Jupiter in comparision to other planets. It focuses on one of Jupiter's moons in particular, Europa, with the explanation of the presence of water on that natural satellite (Levison *et al.*, 2007; Thommes *et al*., 2002; D'Angelo *et al*., 2010).

The non-negligible movement of the Sun by the ejections of substitute rock-based structures of Mercury caused the alteration of the orbital path of the planets. The Kuiper Belt was also included in this alteration which, due to the gravitational attraction of the Sun, was accelerated in the direction of the Sun. As the Kuiper belt asteroids and meteoroids travelled towards the Sun they were further accelerated by the gravitational attraction of the gas giants. A fraction of the asteroids and meteoroids, due to the effect of high gravitational pull by the largely sized planets, alter the direction of their motion to orbit the gas giants of the solar system and formed rings consisting of asteroids and meteoroid structures around the diameter of the planets. The theoretical model explains the reason of disks formation around only the planets which were in existence at that period of time. The planets before Jupiter which are Venus, Earth, and Mars have no disks consisting of asteroid or meteoroid bodies as those planets did not exist at that point of time. A very small fraction of the asteroids, which reached the planet Mercury, were attracted towards the Sun therefore the planet Mercury has no disks of cosmic rocks surrounding it and hence take the state of comets orbiting the sun. As the asteroids/meteoroids reached the planet Jupiter, the velocity of the asteroids was greater than the escape velocity of Jupiter's atmosphere due to the gravitational accelerations provided by the previous Gas giants. The asteroids therefore acceleration towards the Planet X, this is an hypothetical gas giant which existed in the place of what presently is the asteroid belt, further disintegrated into the asteroid belt explained later in the paper. This planet existed along with the other gas giants before the birth of Mercury, Venus, Earth and Mars. The planet had large number of moons (including the Moon of Earth), large Methane reserves, and a metal core. The temperature of the planet was extremely low to prevent the combustion of methane. The planet also contained large amounts of Nitrogen and Oxygen in the atmosphere where

$$Volume\ (N_2) > Volume(O_2).$$

The hypothetical physical properties of Planet X is given below, according to fit the theoretical model and the present day conditions of the Solar System.

$$Mass\ of\ Planet\ X \geq 1.148164 \times 10^{24}$$

$$Volume\ of\ Planet\ X \geq 2.17439 \times 10^{12}$$

$$Atmosferic\ Temperature\ of\ Planet\ X \geq 179.5℃$$

As the asteroids/meteoroids collided with Planet X, the temperature of the planet X started to increase, the methane on the surface of this hypothetical planet converted into gaseous form. The impact of collision also affected the moons of Planet X. The moons of X often collided with the asteroids/meteoroids of the Kuiper belt and formed large craters on the surface of the moons. This is the reason due to which the moon of the Earth and other planets of the solar system are often covered with large craters. As the temperature of the Planet X gradually increased, the methane on the surface of the planet shifted to gaseous phase and a small fraction of the amount of methane rose towards the atmosphere. The continuous process of collisions of the asteroids/meteoroids to the planet allowed Oxygen to react with the methane forming carbon dioxide and water.

$$CH_{4(aq)} + 2O_{2(aq)} -> CO_{2(aq)} + 2H_2O_{aq}$$

The combustion of methane to form gaseous chemical compounds decreased the escape velocity of Planet X. The change in the gravitational attraction of the planet caused various moons of the planet which had a large radial distance to increase the distance between the two bodies as the mass of Planet X was decreasing simultaneously. Those moons travelled towards the body in the solar system with relatively less distance and greater gravitational field, the planet Jupiter. The transfer of the most moons of Planet X to the Planet Jupiter is the reason due to which Jupiter has the most number of moons in the solar system. The phenomenon of the combustion of methane and the formation of the planets is called *Hyper- state Diversion* (Lissauer *et al.*, 2009).

Table 2. This table represents the division natural satellites between planetary bodies before Hyperstate division. The next table will show how the natural satellites will be distributed after Hyperstate division occurs.

Planet	No. of Natural Satellites
Mercury	0
Planet X	N
Jupiter	X
Saturn	62
Uranus	27
Neptune	14

As the Hyper-state Diversion was in process the gravitational field of Planet X was simultaneously decreasing as the mass of the planet was also decreasing. The disk of asteroids and meteoroids formed around the planet stated to disintegrate. Also the debris from the collisions of the asteroids/meteoroids spread throughout the orbit of Planet X which caused the formation of the asteroid belt.

Table 3. This table represents the division natural satellites between planetary bodies after Hyperstate division.

Planet	No. of Natural Satellites
Mercury	0
Planet X	3
Jupiter	X+N-3=67
Saturn	62
Uranus	27
Neptune	14

Table 4. This table represents the division natural satellites between planetary bodies in the present day

Planet	No. of Natural Satellites
Mercury	0
Venus	0
Earth	1
Mars	2
Jupiter	67
Saturn	62
Uranus	27
Neptune	14
Planet X	0

4. Stage III

The third stage of the theoretical model explains the formation of Earth, Mars and Venus, the reason for existence of life on Earth, the origin of water and methane on Venus and Mars, the origin of organic compounds on Earth and the presence of Carbon monooxide on Venus, Earth and Mars. The collision of the asteroids/meteoroids form the Kuiper Belt and the collisions from the Asteroid Belt caused large amount Thermal Energy which increased the overall temperature of Planet Xc. The overall increase in the temperature of the atmosphere of the planet produced enough thermal energy to activate the combustion of methane and simultaneously activate the dissociation of the methane molecule. The methane molecules when combusted produce Carbon dioxide and water.

$$CH_{4(aq)} + 2O_{2(aq)} -> CO_{2(aq)} + 2H_2O_{aq}$$

$$CH_{4(aq)} -> C_{aq} + 4H_{aq}$$

As the combustion of methane is a highly exothermic reaction the temperature of the atmosphere continues to increase; thus the combustion of methane along with the dissociation of the methane molecule is favored. The formation of the Carbon atoms and organic compounds in the four planets majorly come from this particular source. The large amount of Carbon dioxide is formed due to the two sources of Carbon dioxide on Planet X (Ayliffe et al., 2009; Goldreich et al., 1973; Caffe et al., 1987; Greaves, 2005).

Source 1:

$$CH_{4(aq)} + 2O_{2(aq)} -> CO_{2(aq)} + 2H_2O_{aq}$$

Source 2:

$$CH_{4(aq)} -> C_{aq} + 4H_{(aq)} + 2O_{2(aq)} + 2H_2O_{aq}$$

The reason due to which the quantity of oxygen present in the atmosphere of Earth is less is that a large amount of Oxygen was used in the oxidation of Carbon and Hydrogen atoms in exited state and the combustion of methane, since the atmosphere of Earth is a derivation of the atmosphere of Planet X.

The carbon dioxide produced from the combustion of the methane molecules raised towards the stratosphere of Planet X. The total volume of carbon dioxide produced was divided between the two tails similar to that of comets. The tails of Carbon dioxide split between the lower Gravitational field Jupiter and the higher Gravitational field, The Sun. The larger gravitational attraction of Planet X towards the Sun caused unequal volumes of distribution of Carbon dioxide between the tails of carbon dioxide with the tail (L1) pointing towards the Sun receiving larger amount of the gas compared to the other tail of Carbon dioxide (L2). The partial dissociation of planet X also caused the planet to accelerate towards the Sun which increased the Kinetic energy of the carbon dioxide. L1, towards the Sun, received direct electromagnetic radiations from the Sun and thermal energies from planet X, hence the molecules of carbon dioxide in L1 contain greater Kinetic energy from the molecules of L2. Since the density of water molecules is much greater than the density of the carbon dioxide water produced by combustion and oxidation remained on the surface of Planet X. However a considered fraction of the water molecules evaporated during the impact of asteroids/meteoroids on Planet X and during the formation of L1 and L2 due to which Mars and Venus contain and limited amount of water beneath their surfaces. The dissociation of the planet caused the internal gravitation attraction of the L1 and L2 to increase. During the internal collapse of the L1 and L2 the rate of seismic activity on Planet X increased due to the thermal energy produced by the combustion reactions of methane. This violent activity caused the ejections of craters, metals and water vapors on L1 and L2. The ejections from the planet also included amounts of Nitrogen and Oxygen in the atmosphere of the planet Furthermore a certain amount of carbon produced was also ejected in to the atmosphere which is the cause of carbon to be present in the planetary bodies of Mars and Venus. Carbon monoxide also formed on L1 and L2 through the following reactions:

$$CH_{4(aq)} + O_{2(aq)} -> CH_{3(aq)} + HO_{2(aq)}$$

$$CH_{3(aq)} + O_{2(aq)} -> CH_2O_{(aq)} + OH_{(aq)}$$

$$CH_2O_{(aq)} + O_{(aq)} -> CHO_{(aq)} + OH_{(aq)}$$

$$CH_2O_{(aq)} + H_{(aq)} -> CHO_{(aq)} + H_{2(aq)}$$

$$CHO_{(aq)} + O_{(aq)} -> CO_{(aq)} + OH_{(aq)}$$

$$CHO_{(aq)} + H_{(aq)} -> CO_{(aq)} + H_{2(aq)}$$

As Planet X proceeded towards the Sun, the internal gravitation of L1 and L2 increased due to the disintegration of the planet, this increase caused the tails to form a structure through which gravitation could be exerted towards the center of the body. The two tails L1 and L2 gradually formed into the atmosphere of the respective planets. Where L1 is the atmosphere of Venus and L2 is the atmosphere of Mars.

The process of Hyperstate diversion explains the presence of Carbon dioxide dominated planets around the Earth which is a water dominated planet.

The potential energy of the Planet decreased as Planet X moved closer to the Sun. Also the Kinetic Energy of the planet decreased simultaneously due to the energy required by the chemical reactions. Hence at one point the Kinetic Energy of the Planets decreased to a limit on which the accelerated motion towards the Sun stopped resulting in the orbits of Mars and Venus focused towards the Sun. As the maximum amount of energy of the Planet X, which after Hyper state diversion transformed into Earth, was used into energy provided to Chemical reactions, seismic activity, and ejections of the Earth the orbital speed of the Earth is less than that of Venus. The orbital speed of Mars is less than the orbital speeds of Earth and Venus due to less supply of Thermal Energy than the other planets involved in hyper-state diversion.

Table 5. This table represents the division natural satellites between planetary bodies in the present day.

Planet	Orbital Speed
Venus	35.02 km/s
Earth	29.78 km/s
Mars	24.077 km/s

A. Formation of Carbon and Organic compounds

Carbon unlike the other elements of the periodic table, mostly metals, was not present in Planet X. (At the current position of the asteroid belt) The Carbon on the surface of Earth in all of its form was created because of the hyper state diversion.

The formation of carbon, hydrocarbon and other organic compounds was not the first stage after the dissociation of the methane clouds. Carbon and Hydrogen free radicals formed form the dissociation of methane; these free radicals went through a sum of stages resulting in the formation of multiple organic compounds. The existence of Halogens in organic compounds predict the existence of Halogens on the former Planet X and Titan (moon) and the high temperatures of the hyper state diversion on the

former planet for which it reached the bond energy required to initiate these reaction (Portegies Zwart *et al.*, 2009).

Table 6. This table represents the set of organic compounds which could've been formed from the free radical reactions on Planet X.

Planet	No. of Natural Satellites
Alkanes	Carbon, Hydrogen
Alkanes	Carbon, Hydrogen
Halogen-o-alkanes	Carbon, Hydrogen, Halogen
Aldehydes	Carbon, Hydrogen, Oxygen
Ketones	Carbon, Hydrogen, Oxygen
Carboxylic acids	Carbon, Hydrogen, Oxygen
Amines	Carbon, Hydrogen, Nitrogen
Nitriles	Carbon, Hydrogen, Nitrogen
Acyl chlorides	Carbon, Hydrogen, Oxygen, Chlorine
Alcohols	Carbon, Hydrogen, Oxygen
Ether	Carbon, Hydrogen, Oxygen

B. Stages of the Carbon Cycles

1. Free radical reaction

The free radical formation initiate from the high intensity radiations from the Sun. The subordinate source of heat energy is the reactions releasing huge amounts of heat energy during multi-atomic compound formation. The total energy needed for a complete free radical reaction of methane is 1640 kJ per mole causing the formation of a Carbon atom with 4 hybridized electrons and a Hydrogen atom.

$$CH_4 \rightarrow C + 4H$$

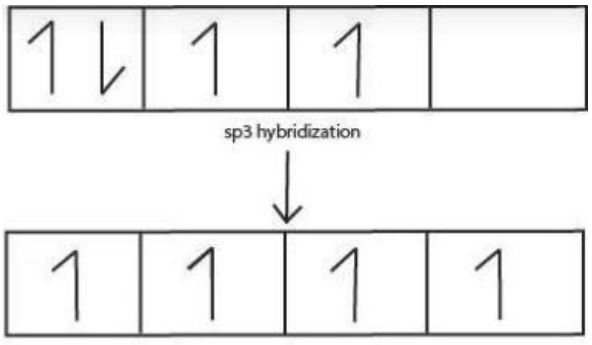

Figure 1. This image represents the hybridization of the Carbon atom.

2. Formation of CarbHexene

CarbHexene is a alicyclic hydrocarbon composed of six carbon atoms bonded with each other containing one sigma bond and one pi bond. This molecule has strong Vander Waal forces and due to the strength of the London dispersion forces produced the molecule has a high melting point of n where n satisfies the inequality (n > 3500 C.). Due to the former dissociation reaction of methane. The carbon atom possess the ability to form four bonds per atom due to the number of hybridized carbon atoms. To gain

maximum stability due to the large kinetic energy of the molecules at extreme temperatures the Carbon atoms achieve maximum stability by forming as many bonds possible; in this case the maximum value is four .The structure of the CarbHexene molecule is similar to Benzene except the delocalized ring of electrons around the carbon atoms. Since the CarbHexene molecule achieves maximum stability possible at extreme temperatures it is considered as the first organic molecule from which all aliphatic, aromatic and alicyclic organic compounds are formed. It is also the initiative molecule of the Carbon Cycle (Woolfson *et al.*, 1984).

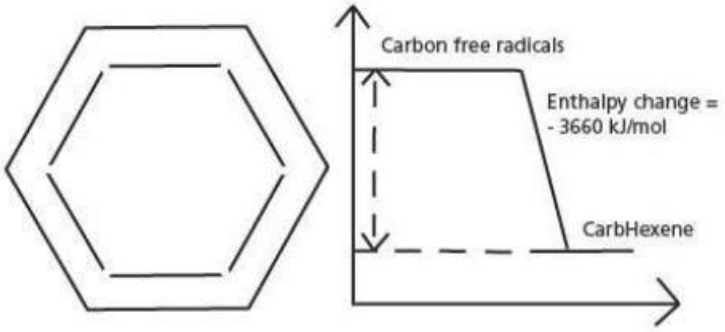

Figure 2. This image represents the enthalpy diagram ad the skeletal structure of CarbHexene.

The highly exothermic reaction achieving maximum stability is also the cause of the further dissociation of the methane molecules and decreases the probability for the dissociation of the CarbHexene molecule. Due to its earliest formation than all other organic molecules CarbHexene is either simplified into other organic molecules or hidden in the lowest layer of the crust of the Earth in scarce quantities.

C. Metaphoric Clusters of Carbon in Terrestrial Planets

The formations of metamorphic clusters of CarbHexene required high temperatures and pressures, the hyper state diversion produced large amounts of heat energy but the component of the required pressure did not appear during the adjacent times after the hyper state diversion therefore most of the CarbHexene was further dissociated and formed further simple and complex organic compounds, the lack of consistent pressure is the reason why there is a scarce quantity of diamond on the surface of earth than that of coal, which requires less pressure to form. Diamond is thermodynamically unstable with respect to graphite at ambient conditions, 300 K and 1 atm. At 300 K it requires about 14.500 atmospheric pressure to transform graphite into diamond. That is how diamonds were formed (presumably) at great depths below the earth's surface. This is the reason why coal is found in metamorphic clusters on the surface of earth rather than clusters of CarbHexene although the molecule of CarbHexene forms a greater Vander-Waal forces.

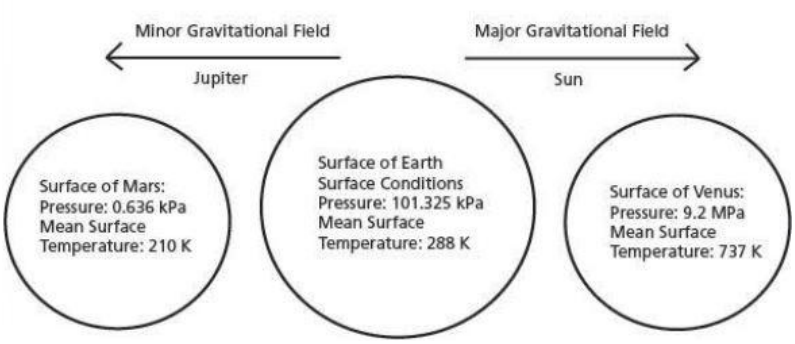

Figure 3. This image represents the physical properties of Earth, Mars and Venus between major and minor gravitational fields of Sun and Jupiter

The formation of Planet Mercury and Planet Venus' rich carbon dioxide atmosphere is due to the tails of the layers of carbon dioxide formed by the complete combustion of methane by the large quantities of oxygen gas in the atmosphere of Planet X. The tails of carbon dioxide were directed towards the major and minor gravitational fields of the solar system during the consistent motion of the Planet X towards the Sun. The major gravitational field was directed towards the Sun whereas the minor gravitational field is directed towards Jupiter. Due to the major field the kinetic energies of the molecules of carbon dioxide was greater hence creating a minor condensation effect The minor gravitational field directed towards Jupiter caused lower kinetic energies of carbon dioxide molecules Hence increasing the overall condensation effect in Planets Mars' atmosphere. This caused the Martian atmosphere to contain 0.0557 percent of Carbon which is greater than the amount of carbon in Venus' atmosphere. Although a lengthy process of formation coal also requires great amount of pressure, these conditions were satisfied in Earths atmosphere.

Lower temperatures of Mars atmosphere created greater condensation effect thus generating clusters of impure and weakly bonded carbon atoms together on the crust.

1. Formation of Methyl radicals

During the consistent linear motion of Planet X towards the Sun, the temperatures due to the intense radiations of the Sun were unevenly distributed throughout the planetary body.

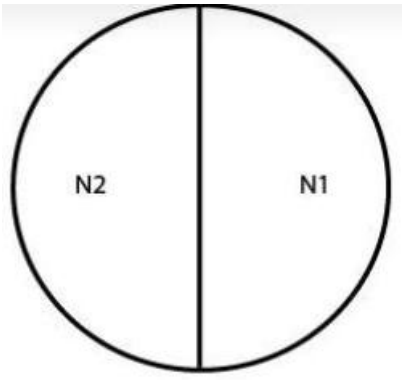

Figure 4. This image represents the division of N1/N2 between hyperstate-division

The area N1 of the Planet received increasingly intense radiations from the sun causing the complete dissociation of the methane molecules whereas the major sources of heat for the area N2 was the formation of CarbHexene organic molecules and the conduction of heat from area N1.

$$N1Energy > N2Energy$$

$$\sum N1HeatEnergies - (1640n) + (3660xm) = N2Energies$$

where n = number of methane molecules dissociated m = number of CarbHexene molecules formed.

As the area N2 of the Planet X receives less amount of energies the dissociation of the methane molecules does not complete therefore alkyl groups form. These excited alkyl groups combine with each other to form aliphatic and branched chain hydro-carbons to stabilize itself. All aliphatic hydro carbons on the surface of the earth arise from the partial dissociation of the methane molecules due to the less amount of heat energy received.

2. Benzene Radiculate Formation

The lack of a high pressure environment during the hyper state diversion caused an adherence in the formation of metamorphic rocks of CarbHexene. Due to the increasing intense radiations from the Sun the energies of the atmosphere T reached beyond the bond energies of single bonded carbon atoms C-C, therefore causing the dissociation of CarbHexene molecules.

$$T \geq= bondenergyofC - C$$

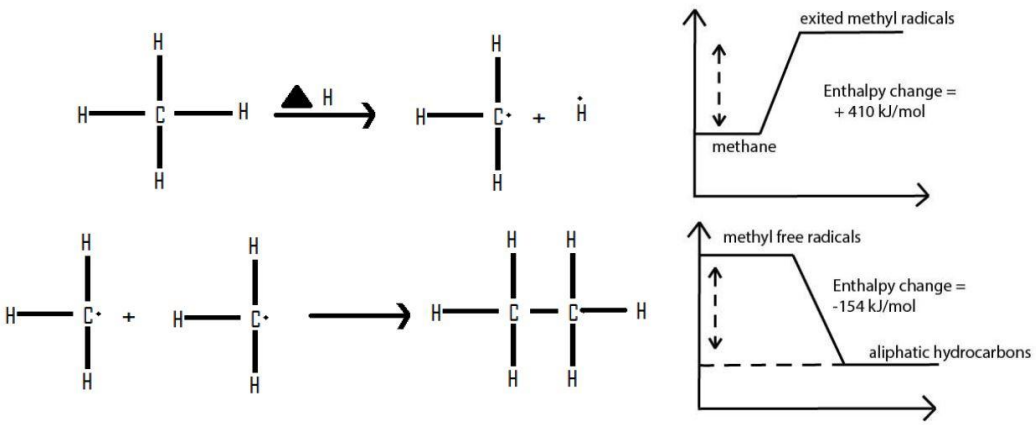

Figure 5. This image represents the skeletal diagram and the enthalpy diagrams for methane and ethane formed after hyperstate division of Planet X

The constantly decreasing distance from the Sun and the heat energy from the exothermic formation of CarbHexene caused the molecules to partially dissociate. The pi bonds of the CarbHexene molecules are considered to be weak bonds due to the partial overlapping of the p orbitals of electron clouds. Since the energies of the atmosphere were not beyond the bond energy of double bonded carbon atoms the CarbHexene molecule did not dissociate completely, however the weakest bond of the

two was broken by achieved energies. The process of benzene Radiculate formations did only continue until the surrounding minimum energy of the atmosphere of Planet X was greater than (T). This process does not involve the ionization of Carbon free radicals but the dissociation of three or greater than three pi bonds. The formation of the Benzene Radiculate is the primary source of all alicyclic compounds present on the Planet X.

5. Origin of life by hyper state diversion

As the process of the Carbon Cycle continued at a proportional rate to the intensity of light given by the Sun. The energy received by the planet was not only essential in the formation of reserves of carbon on the planet but also for the formation of such Deoxyribonucleic acid (DNA) that encodes the genetic instructions used in the development and functioning of all known living organisms. The atoms involved in the formation of the monomers of polynucleotides, nucleotides, involve Carbon, Hydrogen, Nitrogen, Oxygen and Phosphorus. The carbon cycle explains the process of the origin of Carbon and basic organic compounds in Planet X. The Carbon free radicals produced during the dissociation of the methane molecule, the Hydrogen free radicals produced by the dissociation of the methane molecules and the Nitrogen free radicals, these radicals required a great amount of energy to form due to the chemical stability of the Nitrogen compounds. The free radicals of Hydrogen, Nitrogen and Carbon, during the Hyper-state diversion, were surrounded by a highly energetic environment and proceeded to achieve maximum stability maximum stability during the ejections of Carbon atoms to the Surface of Mars and Venus during rapid seismic activity. The C, H and N free radicals combined in a exothermic reaction to form a molecule of HCN. HCN is responsible for the origin of life. The conjecture of the formation of prussic acid in Planet X may also be the reason due to which HCN is detected in space. As the reaction of HCN took place in the atmosphere of Planet X (Earth). It is the only planet where life has formed.

6. Conclusion

We have now travelled through the detailed and chronologically extensive history explaining the possible origin of the solar system initiating from ejections of pure elements from the sun clumping together to form mercury, causing a gravitational perturbence in the Kuiper belt and gas giants of outer solar system, leading to its collision with methane rich seas of Planet X formed 4.54 billion years go which then according to hyperstate division disintegrated and formed into what we know as Mars, Earth, Venus, and the asteroid belt. The free radical formation from combustion could also lead to the possible explanation of the origin of DNA on Earth. It is however possible that the series of events leading to the current day solar system are not accurate or may not follow the order we described in the paper, however we observe that the current state of the solar system agrees with our hypothesis. R. Gomes paper, "Origin of the cataclysmic Late Heavy Bombardment period of the terrestrial planets" aligns the Late Heavy Bombardment (LHB) with what we state as hyperstate division and states, "Planetary formation theories cannot naturally account for an intense period of planetesimal bombardment so late in Solar System history. Several models have been proposed to explain a late impact spike but none of them has been set within a self-

consistent framework of Solar System evolution "stating that past hypothesis cannot integrate the events of LHB with the evolution of the solar system whereas our models passes this constraint by explaining all events including the integration of LHB into our model. As we have the theoretical model explained in detail, our next step will be to form a step by step numerical simulation starting from the origination of Planet Mercury to the formation of the planets of the inner solar system.

References

Agnor, C.B., Douglas H.P. (2006). Neptune's capture of its moon Triton in a binary-planet gravitational encounter. *Nature*, 441, 192-194.

Ayliffe B.A., Bate M.R. (2009). Gas accretion on to planetary cores: three-dimensional self-gravitating radiation hydrodynamical calculations. *Monthly Notices of the Royal Astronomical Society*, *393*(1), 49-64.

Batygin, K., Laughlin, G. (2008). On the Dynamical Stability of the Solar System. *The Astrophysical Journal*, *683*(2), 1207-1216.

Bevilacqua, R., Menchi, O., Milani, A., Nobili, A.M. (1980). Resonances and close approaches. I. The Titan-Hyperion case. *Earth, Moon, and Planets*, *22*(2), 141-152.

Bottke, W.F., Durba, D., Nesvorny, D. (2005). The origin and evolution of stony meteorites. *Proceedings of the International Astronomical Union. Dynamics of Populations of Planetary Systems*, 197, 357-374.

Brown, M.E., Ragozzine, D., Stansberry, J., Fraser, W.C. (2010). The Size, Density, and Formation of the Orcus-Vanth System in the Kuiper Belt. *The Astronomical Journal*, *139*(6), 2700-2705.

Caffe, M.W., Hohenberg, C.M., Swindle, T.D., Goswami, J.N. (1987). Evidence in meteorites for an active early sun. *Astrophysical Journal Letters*, 313, L31-L35.

Canup, R.M., Asphaug E. (2001). Origin of the Moon in a giant impact near the end of the Earth's formation. *Nature*, 412, 708.

Canup, R.M. (2005). A Giant Impact Origin of Pluto-Charon. *Science*, 307, 546-550.

Chambers, J.E. (2013). Late-stage planetary accretion including hit-and-run collisions and fragmentation. *Icarus*, *224*(1), 43-56.

Chapman C.R. (1996). The Risk to Civilization From Extraterrestrial Objects and Implications of the Shoemaker-Levy 9 Comet Crash. *Abhand-lungen der Geologischen Bundeanstalt, Wien*, 53, 51-54.

D'Angelo, G., Durisen, R.H., Lissauer, J.J. (2010). Giant Planet Formation. In Seager, Sara (ed.). Exoplanets. *University of Arizona Press*, 319-346.

Edgar, R., Artymowicz P. (2004). Pumping of a Planetesimal Disc by a Rapidly Migrating Planet. *Monthly Notices of the Royal Astronomical Society*, *354*(3), 769-772.

Fischer, R.A., Ciesla, F.J., (2014). Dynamics of the terrestrial planets from a large number of N-body simulations. *Earth and Planetary Science Letters*, 392, 28-38.

Fogg, M.J., Nelson R.P. (2007). On the formation of terrestrial planets in hot-Jupiter systems. *Astronomy Astrophysics*, *461*(3), 1195-1208.

Goldreich, P., Ward W.R. (1973). The Formation of Planetesimals. *Astrophysical Journal*, 183, 1051.

Greaves J.S. (2005). Disks Around Stars and the Growth of Planetary Systems. *Science*, 307, 68-71.

Hayes W.B. (2007). Is the outer Solar System chaotic? *Nature Physics*, *3*(10), 689-691.

Hester, J.J., Desch, S.J., Healy, K.R., Leshin L.A. (2004). The Cradle of the Solar System. *Science*, 304, 1116-1117.

Hsieh H.H., Jewitt D. (2006). A Population of Comets in the Main Asteroid Belt. *Science*, 312, 561-563.

Izidoro, A., Haghighipour, N., Winter, O.C., Tsuchida, M. (2014). Terrestrial Planet Formation in a Protoplanetary Disk with a Local Mass Depletion: A Successful Scenario for the Formation of Mars. *The Astrophysical Journal, 782*(1), 31.

Kargel, J.S. (2004). *Mars: A Warmer, Wetter Planet.* Springer. ISBN 1-85233-568-8.

Krasinsky, G.A., Pitjeva, E.V., Vasilyev, M.V., Yagudina, E.I. (2002). Hidden Mass in the Asteroid Belt. *Icarus*, 158(1), 98-105.

Levison, H.F., Morbidelli, A., Van Laerhoven, Ch. (2007). Origin of the Structure of the Kuiper Belt during a Dynamical Instability in the Orbits of Uranus and Neptune. *Icarus, 196*(1), 258-273.

Lineweaver, C.H. (2001). An Estimate of the Age Distribution of Terrestrial Planets in the Universe: Quantifying Metallicity as a Selection Effect. *Icarus, 151*(2), 307-313.

Lissauer, J.J., Hubickyj, O., D'Angelo, G., Bo- denheimer, P. (2009). Models of Jupiter's growth incorporating thermal and hydrodynamic constraints. *Icarus, 199*(2), 338-350.

Lorenz, R.D., Lunine, J.I., McKay Ch.P. (1997). Titan under a red giant sun: A new kind of "habitable" moon, *Geophysical Research Letters*, 24, 2905-2908.

Malhotra R. (1995). The Origin of Pluto's Orbit: Implications for the Solar System Beyond Neptune. *Astronomical Journal*, 110, 420.

Mitton, S., (2005). Origin of the Chemical Elements. Fred Hoyle: A Life in Science. Aurum. 197-222.

Montmerle, T., Augereau, J.-Ch., Chaussidon M. (2006). Solar System Formation and Early Evolution: the First 100 Million Years. Earth, Moon, and Planets. Springer, 98, 39-95.

Morbidelli, A., Chambers, J., Lunine, J.I., Petit, J.-M., Robert, F., Valsecchi, G.B., Cyr, K.E. (2000). Source regions and timescales for the delivery of water to the Earth. *Meteoritics Planetary Science*, *35*(6), 1309-1320.

Neron de Surgy, O., Laskar, J., (1997). On the long term evolution of the spin of the Earth. *Astronomy and Astrophysics*. 318, 975-989.

O'Brien, D., Morbidelli, A., Bottke, W.F. (2007). The primordial excitation and clearing of the asteroid belt|Revisited. *Icarus*. *191*(2), 434-452.

Petit, J.-M., Morbidelli, A. (2001). The Primordial Excitation and Clearing of the Asteroid Belt. *Icarus*, 153, 2, 338-347.

Portegies Zwart S.F. (2009). The Lost Siblings of the Sun. *Astrophysical Journal*, 696, L13-L16.

Sackmann, J., Boothroyd, A.I., Kraemer, K.E. (1993). Our Sun. III. Present and Future. *Astrophysical Journal*, 418, 457.

Schroder, K.P., Smith R.C. (2008). Distant future of the Sun and Earth revisited. *Monthly Notices of the Royal Astronomical Society*, *386*(1), 155-163.

Stevenson, D.J. (1987). Origin of the moon - The collision hypothesis. *Annual Review of Earth and Planetary Sciences, 15*(1), 271-315.

Tegler, S.C. (2007). Kuiper Belt Objects: Physical Studies. In Lucy-Ann McFadden; et al. (eds.). *Encyclopedia of the Solar System*, 605-620.

Thommes, E.W., Duncan, M.J., Levison, H.F. (2002). The Formation of Uranus and Neptune among Jupiter and Saturn. *Astronomical Journal*, (5), 2862-2883.

Whipple, F.L. (1992). The activities of comets related to their aging and origin. *Celestial Mechanics and Dynamical Astronomy*, 54, 1-11.

Williams, J. (2010). The astrophysical environment of the solar birthplace. *Contemporary Physics*, *51*(5), 381-396.

Woolfson, M.M. (1984). Rotation in the Solar System. *Philosophical Transactions of the Royal Society*, 313, 5-18.