

An Investigation of the Universal Gravitation Constant based on the Celestial Clock

Dr. K. Somashekhar Udupa

Revised Edition

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An Investigation of the Universal Gravitation Constant based on the Celestial Clock

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**Dr.K. Somashekhar Udupa,
Retd. Professor, Temple Tank Square,
Post KOTESHWAR, PIN 576 222
Kundapur Taluk, Udupi Dist, Karnataka State, INDIA.
E-mail: pudupa@hotmail.com
or dr_ksudupa36@sify.com**

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This book is dedicated to my wife Mrs. K. Pramoda Udupa, my sons, son-in-law, daughter, daughters-in-law and beloved members of my family at India.

I sincerely thank Mr. Jeff Young, Editor of Universal Publishers, for his wholehearted support in bringing out this book in a neat form.

CONTENTS

INTRODUCTION

1. Mechanism of the solar system	CHAPTER - 1
1.1 The dilemma of 25.38 d period of Sun existing during the past and present century.	Page...1
1.2 Mechanism of solar system-1.	Page...2
1.3 Lower density leading to loose core structure, leading to the formation of planets and satellites.	Page...3
1.4 Highlights of the modern hard core theory of mechanism of the solar system.	Page...3
1.5 Basic creation of the Universe from microactivity to macroactivity	Page...5
1.6 Mechanism of the solar system- 2.	Page...7
1.7 Sun prefers core minimizing techniques to increase the overall memory of the galactic system.	Page...21
1.8 Table incorporating sun's cores needed primarily for the axial as well as sidereal motion of the planets of the solar system.	Page...23
1.9 For smooth sidereal and rotational motion of planets synchronized relations with Sun should exist which satisfies $(t/T)_{\text{Axial}} \cong (t/T)_{\text{Sidereal}}$ for each planet.	Page...26
1.10 What is this strange logic behind the periods of the planets and their satellites?	Page...29
1.11 Calculation of total satellite periods for the planets Jupiter, Saturn, Uranus, Neptune and Pluto.	Page...33
1.12 Astronomical clocks, celestial clock references also called Universal clock relations which are verified with respect to the astronomical bodies in the solar system.	Page...39
1.13 Astronomical multiple clocks or celestial multiple clock references or Universal clock relations of higher order.	Page...40
1.14 Definition of the gravitational constant "G" as per the Universal clock.	Page...41
1.15 Effect of double clock on the gravitational force.	Page...48
1.16 Effect of multiple clock " $e^{4.158t/T}$ " on the gravitational force.	Page...54
1.17 Distinction between the congested field of gravitation and the new broadened theory of Universal gravitation.	Page...55
1.18 My contentions under "My sincere attempt to broaden the existing congested road to Universal Gravitation."	Page...56
1.19 My sincere attempt to broaden the existing congested road to Universal Gravitation "G".	Page...58
2. Mechanism of the planetary system	CHAPTER - 2
2.1 Mechanism of the planetary system.	Page...59
2.2 The study regarding the variation of distance \times density of planets and distance \times mass of planets.	Page...60
2.3 Primary system leading to secondary system.	Page...61
2.4 An elaborate discussion of the secondary system of satellites.	Page...63

2.5 Concluding remarks on the secondary system or satellite system.	Page...93
3. Mechanism of the galactic system	CHAPTER - 3
3.1 Mechanism of the galactic system.	Page...96
3.2 Memory relations of the system of galactic Universe.	Page...98
3.3 Source related data for astronomical bodies climbing right from Moon to Head of Universe.	Page...100
3.4. Source related data for astronomical bodies of low density, climbing right from Jupiter's fourth satellite Thebe to Head of Universe.	Page...102
3.5. Source related data for astronomical bodies of low density, climbing right from Jupiter's third satellite Amalthea to Head of Universe.	Page...103
3.6. Source related data for astronomical bodies of low density, climbing right from Jupiter's tenth satellite Himalia to Head of Universe.	Page...105
3.7. Source related data for astronomical bodies of low density, climbing right from Jupiter's eleventh satellite Lysithea to Head of Universe.	Page...107
3.8 Statistics regarding the distribution of frequency, density and gravity of Sun's rotating shells, giving the proof.	Page...109
4. Memory system of the galactic Universe	CHAPTER - 4
4.1 Mechanism of memory cores.	Page...113
4.2 Natural Mechanism of energy production in Sun.	Page...114
4.3 Chopping frequency on direct sunlight of inner UV core by remaining cores in Sun's interior and hence the survival of mankind.	Page...115
4.4 Memory system of the satellites, a major concern for galactic system.	Page...121
5. Explanation of different statistics on relevant graphs	CHAPTER - 5
5.1. Variation of Md verses period t on log. scale. Graph No.1.	Page...137
5.2. Variation of Md verses period t including Sun and primary galactic centre. Graph No.2.	Page...139
5.3. Variation of density of Sun and planets verses sidereal periods. Graph No.3.	Page...141
5.4. Variation of density of planets verses corresponding distances. Graph No. 4.	Page...143
5.5. Variation of sidereal periods of the planets verses core periods of Sun. Graph No.5.	Page...144
5.6. Variation of frequency of planets with corresponding sun's core periods. Graph No.6.	Page...145
5.7. Variation of Sun's core periods with corresponding frequency of the planets. Graph No.7.	Page...146
5.8. Variation of core periods of Sun verses the corresponding masses of the Sun. Graph. No.8	Page...147
5.9. Variation of core periods of Sun with corresponding planets periods. (a) Graph No.9.	Page...148
5.10 Variation of core periods of Sun with corresponding planets periods. (b) Graph No.10.	Page...149

- 5.11. Variation of the calculated periods frequencies of E, V and Mars with density. Graph No.11. Page...150
- 5.12. Sidereal periods of the planets E, V and Mars verses the periods of their satellites. Graph No.12. Page...151
- 5.13. Variation of Md verses corresponding density of the planets. Graph No.13. Page...152
- 5.14. Calculated periods of the planets Jupiter, Saturn, Uranus, Neptune and Pluto verses total respective periods of their satellites. Graph No.14. Page...153
- 5.15. Variation of t/T verses sidereal periods of the planets Jupiter, Saturn, Uranus, Neptune and Pluto. Graph No.15. Page...154
- 5.16. Variation of sidereal periods of the planets J, S, U, N and P verses their T/t of these planets. ($11.86 y/100.2734 y = 0.1183$). Graph No.16 Page...155
- 5.17 Variation of the calculated periods of the planets J, S, U, N and Pluto with density of these planets. Graph No.17. Page...156
- 5.18. Variation of calculated periods of E, V and Mars with densities of these planets. Graph No.18. Page...157
- 5.19. Variation of Sun's core periods verses Sun's core density. Graph No.19. Page...158
- 5.20. Variation of density of Sun's core verses log. Masses of Sun's cores. Graph No.20. Page...159
- 5.21. Variation of core periods of Sun verses corresponding core densities. Graph No.21. Page...160
- 5.22. Variation of log. density of Sun's cores verses log. Masses of Sun's cores. Graph No.22. Page...161
- 5.23. Variation of density of Sun's cores verses Sun's core gravity. (a) Graph No.23. Page...162
- 5.24. Variation of density of Sun's cores verses Sun's core gravity. (b) Graph No.24. Page...163
- 5.25. Variation of Sun's core frequency verses corresponding core density of sun. Graph No.25. Page...164
- 5.26. Variation of Sun's core frequency verses Sun's cores gravity. Graph No.26. Page...165
- 5.27. Ratio of periods of destination, source t/T verses powers of distance. Graph No.27. Page...166
- 5.28. Ratio of the periods of destination, source t/T verses power of mass. Graph No. 28. Page...167
- 5.29. Ratio of periods of destination, source t/T verses corresponding Log. values of md. Graph No.29. Page...168
- 5.30. Sum of the powers of mass and distance verses difference in the powers of mass and distance. Graph No.30. Page...169
- 5.31. Ratio of periods of destination, source t/T verses difference of each stage from origin. Graph No.31. Page...170
- 5.32 Powers of Masses verses Powers of Distances. Graph No.32. Page...171
- 5.33. Sum of the powers of Mass and Distance verses ratio of periods of destination, source t/T . Graph No.33. Page...172
- 5.34. Log. difference of powers of MD/md verses Power difference of Mass and distance. Graph No.34. Page...173
- 5.35. Difference in the powers of Mass and Distance verses powers of masses. Graph No.35.

- Page...174
- 5.36. Difference in the powers of Mass and Distance verses powers of distance. Graph No.36.
Page...175
- 5.37. Variation of density of Jupiter's satellites with frequency of the periods. Graph No.37.
Page...176
- 5.38 Variation of density of Saturn's satellites with their corresponding periods. Graph No.38.
Page...178
- 5.39. Variation of density of Uranus' satellites with their corresponding periods. Graph No.39.
Page...179

INTRODUCTION

The world-class scientists of gravitational astrophysics even today with the most modern, sophisticated and advanced amenities available, don't describe how the axial period of sun 25.38 d is related to the periods of the planets of the solar system? Here, it is a theoretical study of the sun and all the planets of the solar system, study of satellite system and the galactic system in general by special techniques and methods ever studied so far. This is the major as well as fundamental area of study in astrophysics, which was lacking in the past centuries and which actually forms the gateway for galaxies and the new Universes in the cosmos. If we achieve this, we then come to know the exact and the real meaning of the phrase **“Universe is a clockwork of mechanism”** and at present and even today, it has wrongly been understood. It then opens a new era in the further extensive study of gravitational astrophysics. We will have to go a very long way in this path to trace the ultimate truth in the creation of this strange universe. It then shows that we have been still living in an highly congested and very narrow field of universal gravitation and we see that, time has come for us to modify some of the existing laws and thereby broadening the universal field. Here, you will be exposed to one of the highest miracles of the strange universe where you see, some of our age-old or earlier beliefs are baseless. Hence the title given **“AN INVESTIGATION OF THE UNIVERSAL GRAVITATION CONSTANT BASED ON THE CELESTIAL CLOCK.”**

This book is primarily intended to answer the following questions in Universal Gravitation. The details also contain the following. What is lacking in the existing theory of universal gravitation? What could overcome the deficiency said above? How I would like to go about ? What is the current theory? What I need to prove? What is the present research?

All arguments quoted here are fundamentally based on the **celestial clock** relations. They are slightly different from **nuclear clock** relation cited here. Actually **these two relations are the two faces of one and the same coin** as we can conclude from the arguments shown here. I have also shown here how to change the phase of the Universal clock and execute the normal study of celestial motion? However, each stage is provided with strict verification. This is entirely a new branch where study of astronomical phenomena can be easily executed by using Universal clock relations. Moreover, **it gives an exact definition for an astronomical clock. The study of clock relations applied to the solar system ultimately leads to trace the origin of creation of this strange Universe.**

The main goal or purpose of this book is to trace mainly the origin of creation of this strange Universe. I have every satisfaction here that I have found out some of the major logics behind the creation of this strange Universe. This has been revealed when the secrets have been put to some of the self and internal verification tests. In my attempt to understand the creation of this Universe, I have used simplest mathematics to trace this logic behind it. **I earnestly believe that my attempt in this harder line will be accepted by all classes of people throughout the world.**

This book hits hard on sun's constant rotation period of 25.38d existing during the present and past century and further deals with broad based Universal Gravitation “G” with stagewise strict verification. **This information is highly essential for all schools and colleges spread throughout the world so far as the first and second chapters of this book are concerned. It**

also contains many useful data tables for further extensive study in this line for students and researchers all over the world. This information by itself is first of its kind and also new and it has never been studied so far in any field or in any branch of science.

I honestly welcome all suggestions and clarifications with this regard. I also suppose that I have not hurt the feelings of anybody in my earnest attempt to broaden the existing congested road to **Universal Gravitation “G.”**

Dr. K. Somashekhar Udupa

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CHAPTER-1

1. Mechanism of the solar system

1.1 The dilemma of 25.38 d period of Sun existing during the past and the present century

It is seen that no proper attention has been paid to sun's periods other than the recorded period 25.38 d by the intellectual class of people throughout the world for the past 600 years, more specially for the past two centuries. I think the people have firmly believed that sun has only one period. I actually don't know what makes them to have a belief in a single period? If we have no means of detecting sun's other periods, then we shouldn't conclude that the sun is having only one period. The total mass of the sun is 1.989×10^{30} kg. The total mass of all the planets in the solar system is 2.6692×10^{27} kg. The difference in the mass of the sun and planets is not too large and as a result, the sun can't do miracles on the nine planets of the solar system. However, the single period 25.38 d of sun can't control all the nine planets in their orbits. It shows that it requires more sun's periods for complete control of all the nine planets of the solar system.

As per the old assumption, the sun is very simple in its structure. The core of the sun at the interior rotates as a solid body or single body. This structure of sun again can't control all the nine planets. The sun has to make sufficient preparations in its interior so as to keep all the nine planets strictly in their orbits round him. Moreover, there are two different kinds of rotations namely, axial and sidereal period rotations have to be accomplished by the sun. Hence our earlier assumption of simple sun has to be replaced by modern most complicated sun. The architecture of the interior of the sun is really wondering. Things inside are beautifully arranged. It is because of this inside architecture, the Earth is safeguarded by the direct hit of sunlight. As per the old assumption, no vegetation, no animal kingdom would have survived. **It further concludes that no man would have survived on Earth. In other words, it is the interior decoration of the sun that makes the life on Earth quite possible.**

The interior decoration has elaborate theory. It has memory and logic, more precisely it has logical memory. It is, we who have built-up the theory to know the interior decoration of the sun in relation with the planets of the solar system. The question arises as what is the interior decoration in the sun? The detailed description of this decoration inside the interior of the sun related to the planets in the different orbits round him gives the mechanism of the solar system. This mechanism of the Solar system divides the following quantities in its structure namely mass, period, gravity, density and frequency. The difference between the old assumption and the modern theory lies in its structural aspects. In the old assumption, the above said characteristics are undivided and in the modern theory they are divided within a small margin. It shows that the old assumption is unstable and the new theory is quite stable. However, in our old assumption, all knowledgeable gates are completely closed and in the modern theory all knowledgeable gates are wide open for discovery. In other words, we see the suffocated sun under the old assumption and in the modern theory we see the breathing sun. **The old assumption provides limited scope for research whereas the modern theory involving mechanism of the solar system provides unlimited scope for researchers all over the world.**

1.2 Mechanism of solar system -1

The actual situation of mechanism of the solar system can be made understood by everyone by an example in the following simple way. Suppose the sun puts the first gear period for a planet, then that planet starts its axial rotation. Now, if the sun puts the second gear period for the same planet then that planet, in addition to the above, starts its sidereal period rotation round the sun. In this way only the sun has to actuate all the nine planets to set them in continuous motion round him. However, the periods of the two bodies concerned should be strictly defined by the universal clock, both for axial as well as sidereal period rotations. This is what is strictly demanded by the theory regarding the mechanism of the solar system. **A single second gear period of 25.38 d can't actuate the concerned planet, then how can it actuate all the nine planets without the first gear periods? It is a serious posing question to be discussed in detail.** Moreover, it is a common understanding that the period of a planet in year has to be compensated by sun's period in year only. In the same way, planets periods in days and hours have to be compensated by sun's periods respectively in days and hours only. If this is not done, then it ultimately leads to study of loss of symmetry in nature.

The mechanism of the solar system provides core structure for the sun. This is very essential because the heat generated in the inner cores find breathing space between cores and it will have lasting effect on the overall life and stability of the sun. The theoretical arguments demanded ten core periods so as to keep the sun in touch with all the planets of the solar system. The formation of core structure inside the sun is very essential for memory parameters and for shaping of the sun. **If the sun is having only one merging core period of 25.38 d, then it represents the final status of the blotted, sinking sun who has perched all the planets of the solar system.** However, if this situation is to arrive, then our solar system has to wait for another 5 billion years or more.

Each planet of the solar system has two different kinds of the rotations namely, axial rotation and sidereal rotation. We have for planet mercury 58.7 d is the axial rotation period and 87.97 d is the sidereal rotation period. Similarly for planets Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto respectively 243 d, 23.93h, 24.6h, 9.9h, 10.2h, 10.7h 15.8h and 6.3d are the axial rotation periods of the planets. In the same way, for planets Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto respectively 224.7d, 365.3d, 687d, 11.86y, 29.46y, 84.02y, 164.8y and 248y are the sidereal rotation periods of the planets. The gravitational attraction of planets, the axial and sidereal period rotations are caused by the sun. There are 9 sets of two different kinds of rotation for the planets and in all there are 18 periods explained as above. **Dilemma of the situation in the sun is that for the past few centuries, a single period 25.38 d has been existing.** This is highly inconceivable and demands immediate correction. The main drawback of our thinking is that we say, we have closed the chapter by telling that everything is done by gravitation. If we slightly go deeper into the subject of gravitation, we see the clear picture of the sun namely, the mechanism of the solar system. The mechanism of the solar system demands 18 periods for the sun for controlling all the nine planets. However, compromising with the memory of galactic universe, there exists now 10 periods in the sun for controlling all the nine planets which includes the period 25.38 d also. Thus **sun prefers core minimizing techniques to**

increase the overall memory of the galactic system. The period of the sun should be in years, days and hours. However, one of the second periods of the sun 25.38 d matches the period of the sun in days. If the mechanism of the solar system is revealed then it is as good as knowing the entire galactic universe and by this theory, we can travel up to the Head of Universe.

1.3 Lower density leading to loose core structure, leading to the formation of planets and satellites

When the material density of an astronomical objects is low, then while in rotation it leads to the formation of core structures. The outermost portion of loose structure having higher mass while rotating slowly, accelerates the immediately existing inner structure to rotate a little faster. This process continues from core to core and finally the innermost core rotates with highest angular velocity. The sun having density 1409 kg.m^{-3} , thus has loose structure which finally leads to the formation of inner cores. This loose structure produces drastic changes on the sun's parameters namely, the mass, density, gravity and frequency. They are unequally shared among the different core structures inside sun's interior. They ultimately bring about abrupt changes in the axial and sidereal motion of planets which are under control of sun. This phenomenon is different for luminous as well as non-luminous astronomical objects. The gradations in the density and the total mass restrict the number of planets under control. This is true both for luminous as well as for non-luminous astronomical objects. The higher galactic masses should have the densities defined in the increasing order. In other words, lower galaxies have correspondingly lower number of sun's, when compared to the number of sun's in the immediate higher galaxy. This observation is found true in all the galaxies referred under highlights of the modern theory of mechanism of the solar system.

In the case of non-luminous astronomical objects like planets, those having higher densities either having no satellites or having limited number of satellites. In the case of planet Mercury having density 5420 kg.m^{-3} has no satellite. The Earth having highest density 5510 kg.m^{-3} is having one satellite called Moon. The planet Venus having lower density 5250 kg.m^{-3} is having one Moon of period 9.24 d. However, Mars having still lower density 3960 kg.m^{-3} is having two satellites. The planet Jupiter having much lower density is having a larger number of satellites. Similarly, the planet Saturn having lowest density 680 kg.m^{-3} is having the highest number of satellites in the solar system.

1.4 Highlights of the modern hard core theory of mechanism of the solar system

1. It studies the actual mechanism of the solar system.
2. It studies some of secrets of the solar system.
3. It also studies the secret of the external Universe.
4. The single period 25.38 d alone is inconceivable and instead, a stretch of periods in years, days and hours proved confirmed by the theory.
5. Instead of single mass $1.989 \times 10^{30} \text{ kg}$ for sun, distribution of masses among cores are demanded by the theory.
6. Instead of single density 1409 kg.m^{-3} for sun, distribution of densities among cores are demanded by the theory.
7. Instead of single gravity 274 m.s^{-2} for sun, distribution of gravities among cores are demanded by the theory.

8. Instead of single frequency for sun, distribution of frequencies among cores are demanded by the theory.
9. Theory demands core structures for sun.
10. Theory demands memory for core structures.
11. The cores are based on core minimization techniques.
12. There is UV chopping frequency inside the interior of the sun which protects the global world.
13. Theory introduces Primordial Universe.
14. Theory introduces secondary system containing sun and planets and calculates all its periods.
15. Theory introduces satellite system containing the planets and satellites and calculates all its periods.
16. Traversing up to a distance of 10^{134} m is made possible.
17. Traverse of mass up to 10^{135} kg is made possible.
18. Theory predicts the following
 - (a) no moon for the planet Mercury,
 - (b) one satellite of period 9.24 d for the planet Venus,
 - (c) one satellite of period 27.32 d for the planet Earth and
 - (d) two satellites of periods 7.65 d and 30.21 d for the planet Mars.
19. Earlier sun is suffocated one and the present sun is a breathing sun with life span expectancy more for overall structure of ten breathing cores.
20. Introduces ladder communication systems for mass, period, density, frequency and gravity all providing plenty of information.
21. Bridges two generation gap between the old assumption of solar system and its modern theory.
22. Theory proves that the old assumption is inconceivable under modern temperament.
23. Theory proves that the satellite system is also a matter of concern for the Primordial system.
24. Theory poses questions and provides convincing answers and hence providing necessary verification for the theory.
25. Theory demands that the people shall come out from their old beliefs and come to know the modern acceptable theory.
26. We can also calculate the approximate number of suns in each of the galaxies.
 - (a) Approximate number of suns in the Head of universe = 1×10^{116}
 - (b) Approximate number of suns in the Universal galaxy = 1×10^{83}
 - (c) Approximate number of suns in the Major galaxy = 1×10^{54}
 - (d) Approximate number of suns in the Galaxy = 1×10^{31}
 - (e) Approximate number of suns in the Primary galaxy = 1×10^{13}
27. Theory provides plenty of opportunities for new innovations and observations in the galactic universe.
28. As per theory, memory of one of the sun's cores played a vital role in selecting Venus, Earth and Mars to fulfill the density conditions and as a result, the Earth having the highest density came out first satisfying all the other preliminary requirements for the growth of micro as well as macro-organisms.
29. There are more than 40 computerized graphs explaining the different situations in the mechanism of solar system and the galactic universe.
30. The gravity recorded by the interior of universal galactic system is $467.259 \times 10^{10} \text{ m.s}^{-2}$
31. However, the frequency recorded by the interior of universal galactic system is $454.2 \times 10^{10} \text{ d}^{-1}$
32. The density of the core recorded by the interior of universal galactic system is $240.28 \times 10^{11} \text{ kg.m}^{-3}$

33. The gravity regions in sun are different for each planet for axial as well as sidereal rotation periods.
34. Theory introduces colour cores inside the sun giving out ultraviolet to infrared radiations.
35. Sun prefers core minimizing techniques to increase the overall memory of the galactic system.
36. It introduces five galactic systems right up to the Universal Head.
37. As regards the important structural factors of the sun relating to the rotational and sidereal periods of the planets are very poorly dealt in even today and the modern theory deals it in detail.
38. It concludes that the total satellite period of the planet Jupiter is 23.72 years.
39. It reveals that the total satellite period of the planet Saturn is 21.47 years.
40. It calculates the total satellite period of the planet Uranus as 17.354 years.
41. It estimates the total satellite period of the planet Neptune as 19.347 years.
42. Mechanism of the solar system finalizes the total satellite period of the planet Pluto as nearly zero year.

1.5 Basic creation of the universe from microactivity to macroactivity

1. Radioactivity is microactivity related phenomenon and for which we have the disintegration of a substance is in accordance with the law

$$N = N_0 e^{-\lambda t} \quad \text{----- Eq.1.}$$

It can be proved as follows

The rate of disintegration of a radioactive sample at any instant is directly proportional to the number of atoms present at that instant.

Let N_0 be the number of atoms in a radioactive sample initially and N be the number of atoms at time t . Then the rate of disintegration at time t is

$$-dN/dt.$$

By the radioactive decay law $-dN/dt \propto N$,

$$\text{i.e., } dN/dt \propto -N$$

Let $dN/dt = -\lambda N$ where λ is a constant for the radioactive element and is called its decay constant.

$$\text{i.e., } dN/N = -\lambda dt$$

On integrating, $\log_e N = -\lambda t + C$, where C is a constant of integration.

$$\text{When } t = 0, N = N_0$$

$$\therefore \log_e N_0 = 0 + C$$

$$\therefore \log_e N = -\lambda t + \log_e N_0$$

$$\text{i.e., } \log_e N - \log_e N_0 = -\lambda t$$

$$\text{i.e., } \log_e (N/N_0) = -\lambda t$$

or $N/N_0 = e^{-\lambda t}$ or $N = N_0 e^{-\lambda t}$ and it is called the law of radioactive disintegration.

However, when a graph is plotted by taking N , the number of atoms present at any instant, along the Y-axis and the time t along the X-axis, we get an exponential graph of the type shown in graph no.1 below.

When $t = T$, the half life, $N = N_0/2$

Now substituting these values in the expression $N = N_0 e^{-\lambda t}$

We have, $N_0 / 2 = N_0 e^{-\lambda T}$ or $e^{-\lambda T} = 1/2$, i.e., $e^{\lambda T} = 2$

i.e., $\lambda T = \log_e 2$, i.e., $\lambda T = 2.303 \log_{10} 2$, i.e., $\lambda T = 0.693$, $\therefore T = 0.693 / \lambda$.

Thus, after assuming $t = T$, the half life period of the substance becomes $T = 0.693 / \lambda$

Hence the microactivity law after substitution of the constant λ becomes

$$N = N_0 e^{-0.693t/T} \quad \text{----- Eq.2.}$$

2. We now consider the macroactivity disintegration phenomenon and try to explain the same original principle $N = N_0 e^{-\lambda t}$ slightly in a different way, since it is the next stage of activity.

Here, we consider the evolution of the solar system from the primary galactic centre or Milky way galaxy. However, when the period $t = T$, the initial momenta imparted by the main source are all absorbed by the secondary system. In the next stage spinning and orbital motion starts. As density controls both mass and volume, a situation sets in where the spin as well as orbital periods at $t = T$ requires density conditions of planets and then source and destination period dependent, independent exponential relations exist for all the planets namely Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto and the sun which are stated as shown below

$$m_1 d_1 = M d e^{-\lambda t}, m_2 d_2 = M d e^{-\lambda t}, m_3 d_3 = M d e^{-\lambda t}, m_4 d_4 = M d e^{-\lambda t}, m_5 d_5 = M d e^{-\lambda t}, m_6 d_6 = M d e^{-\lambda t}, m_7 d_7 = M d e^{-\lambda t}, m_8 d_8 = M d e^{-\lambda t}, m_9 d_9 = M d e^{-\lambda t}, \quad \text{----- Eq 3}$$

where $N_0 = M d$ is the decayed source parameter and $N = m_1 d_1 \dots$ etc., are the decayed destination parameters and thus they have picked up the final course of situations or events that come on their way in course of time.

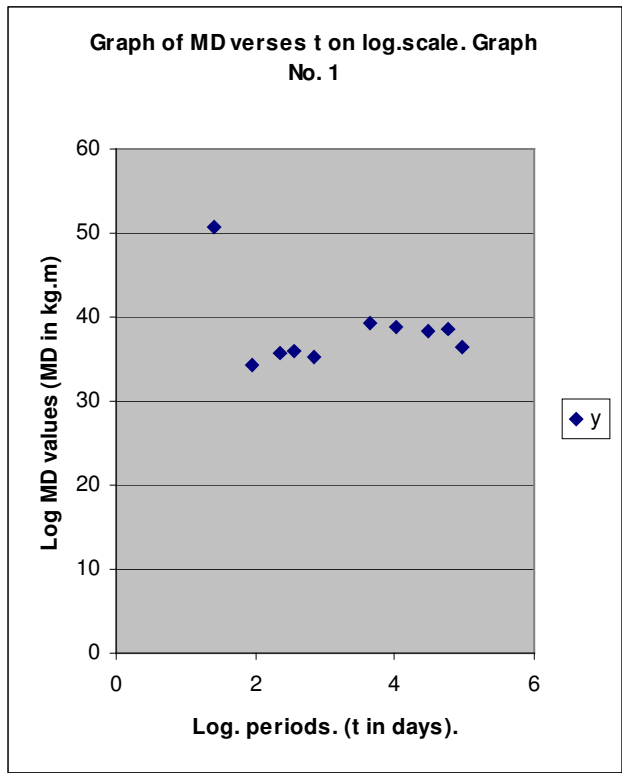
It can be shown that the graph of $M d$ verses period t is also an exponential in character and it can be shown by the following observations.

Explanations for the graph on log. scale

Log. $M d$ -values:	$M d$ values (kg.m)	t values, (days).	log.t values, ↓
↓	$m_1 d_1$ values	↓	↓
(↓) <u>Y-axis</u>	↓		<u>X-axis</u> (↓)
$N_0 +$	$50.7526 \rightarrow 56.5666 \times 10^{49}$ (biggest and maximum)	25.38 (days)	1.4045
+	$34.2814 \rightarrow 1.9116 \times 10^{34}$ (0.1912×10^{35})	87.970	1.9443
+	$35.7217 \rightarrow 5.2683 \times 10^{35}$	224.699	2.3516
+	$35.9515 \rightarrow 8.9431 \times 10^{35}$	365.3	2.56267
+	$35.1652 \rightarrow 1.4631 \times 10^{35}$	687 d	2.8369
+	$39.1697 \rightarrow 1.4779 \times 10^{39}$ (14779.849×10^{35})	4332.454	3.6367
$N +$	$38.9092 \rightarrow 8.1124 \times 10^{38}$ (8112.412×10^{35})	10761.728	4.0319

+ 38.3966 → 2.4920×10³⁸ (2492.011×10³⁵) 30692.481 4.4870
 + 38.6637 → 4.6104×10³⁸ (4610.415×10³⁵) 60201.457 4.7796
 + 36.4698 → 2.9499×10³⁶ (29.499×10³⁵) 90594.326 d 4.9571

- +
- + **Md = Source mass × Source distance = N₀**
- + **m₁d₁ = destination mass × destination distance = N**
- + **N₀ = Md = 1.989×10³⁰ × (3 ×10⁴ × 9.48× 10¹⁵) = 56.5672×10⁴⁹ kg.m**
- +
- + **d₁ = distance from the centre of the sun to the centre of the planet**
- +
- + **d = distance from the centre of the Milky way galaxy to the centre of the sun**
- +-----1-----2-----3-----4-----5-----6- X-axis
- Sidereal period t (days)



GraphNo-1.

It is shown from explanations 1 and 2 above finally leading to the exponential graphs, thus verifying the phenomenon basic creation of universe from micro to macroactivity.

1.6 Mechanism of the solar system - 2

My theoretical discussion is related to the mechanism of the solar system. In this theory, we say that the necessary centripetal force required to rotate the planets is provided by the sun, but the

sun is actually not providing the necessary centripetal force. As a result, the theoretical planets are in standstill position. **Why the sun is not providing the necessary centripetal force as per the relation**

$$GMm/R^2=mv^2/R \quad \text{--- Eq 1.}$$

has to be discussed? This leads to the study of the “ Mechanism of the solar system.”

The spin and sidereal motions of all the planets are initiated by the sun. This initiation still exists or prevails in the sun. The identification of these values give the mechanism of the solar system. If these values are not identified in the sun, then all our theoretical planets (not the primordial planets) are as well at rest for the entire world in the 21st century.

(a) Initially, when the total mass of the sun and all planets (M + m) is embedded in the Primary galactic centre where we have U = 0 for masses (M + m). Just when the mass (M + m) is ejected from the Primary galactic centre, simultaneously the masses M and m get separated from it where we restrict our arguments to sun and planets only.

(b) According to the law of conservation of linear momentum, we have just at the separation of the two masses,

$$(M+m)U = MV + mv \quad \text{where } U = 0 \text{ and thus we have}$$

$$MV + mv = 0 \quad \text{--- Eq 2.}$$

(as bullets fired from a gun or a gun firing bullets as an example only, but not in a real sense)

However, the change in the momentum suffered by the large Primary galactic centre when the original sun is ejected is very small (it is practically at rest, mass of Sun = 1.989×10^{30} kg, mass of Galaxy = 2.2×10^{41} kg, even the mass = 10^{37} kg can't compete with mass = 10^{41} kg) when compared to the momentum of the sun simultaneously ejecting the galactic waste. The two are not thus comparable.

Thus we have,

$$MV = -mv, \quad \text{--- Eq 3.}$$

the negative sign shows that their velocities are in opposite directions. Ignoring the negative sign, we write immediately after when t = 0, the source and destination time dependent relation written as

$$M(d/T) = m_1(d_1/t) + m_2(d_2/t) + m_3(d_3/t) + m_4(d_4/t) + m_5(d_5/t) + m_6(d_6/t) + m_7(d_7/t) + m_8(d_8/t) + m_9(d_9/t) \quad \text{--- Eq 4}$$

(as if placenta is not separated from the newborn, immediately after when t = 0 state)

where M(d/T) represents the (m),(l) and (T) characteristics of the source mass and $m_1(d_1/t)$...etc., represent the (m),(l) and (t) characteristics of the destination masses.

Here, T has its reference with the Primary galactic centre and t has its reference from sun. These T and t are continuous interaction times and they play the roles mainly in

(1) transfer of momenta to the source and destination masses, (2) giving spin motions to source and destination masses and (3) giving orbital motions to source and destination masses.

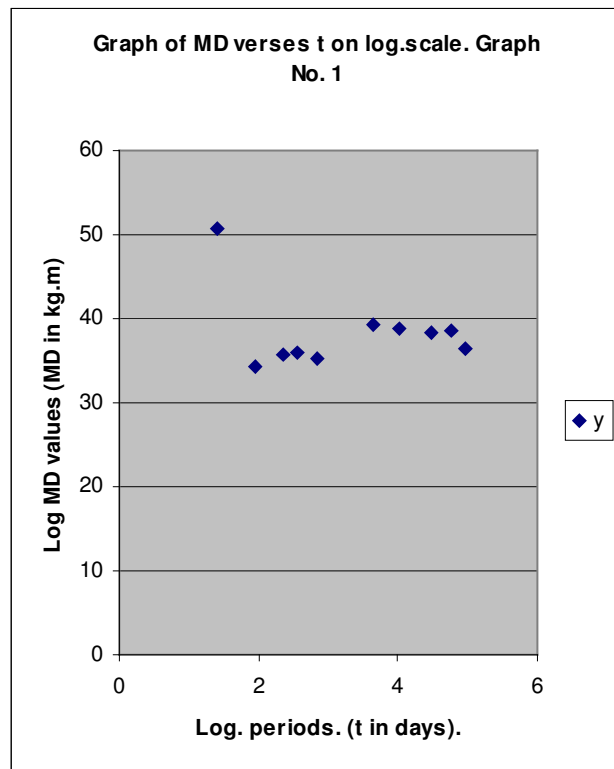
(c) However, when the period $t = T$, the initial momenta imparted by the primary galactic centre are all absorbed. In the next stage spinning and orbital motion starts. As density controls both mass and volume, a situation sets in where the spin as well as orbital periods at $t = T$ requires density conditions of planets and then source and destination period dependent, independent exponential relations exist for sun and all the planets which are stated as below

$$m_1d_1 = M d e^{-\lambda t}, m_2d_2 = M d e^{-\lambda t}, m_3d_3 = M d e^{-\lambda t}, m_4d_4 = M d e^{-\lambda t}, m_5d_5 = M d e^{-\lambda t}, m_6d_6 = M d e^{-\lambda t}, m_7d_7 = M d e^{-\lambda t}, m_8d_8 = M d e^{-\lambda t}, m_9d_9 = M d e^{-\lambda t}, \text{----- Eq.5.}$$

and they take-over the next course of situations or events in space. **All these relations strictly show that the Universe is a clockwork of mechanism.**

(d) Graph of Md verses period t on log. scale for sun and planets of the solar system.

Graph No-1.



Explanations for above graph

Log. Md-values: Md values (kg.m), t values (days). log.t values:

	$\downarrow m_1 d_1$	\downarrow	
<u>(↓) Y-axis</u>			<u>(↓) X-axis</u>
$N_0 + 50.7526$	S 56.5667×10^{49} (biggest and maximum)		S 1.4045
		25.38 (days)	
$+ 34.2814$	M 1.9116×10^{34} (0.1912×10^{35})		M 1.9443
		87.970 d	
$+ 35.7217$	V 5.2683×10^{35}		V 2.3516
		224.699 d	
$+ 35.95159$	E 8.9431×10^{35}		E 2.5627
		365.3 d	
$+ 35.1653$	M 1.4631×10^{35}		M 2.8369
		687 (days)	
$+ 39.1697$	J 1.4779×10^{39} (14779.849×10^{35})		J 3.6367
		4332.454 d	
LogN 38.9091	S 8.1124×10^{38} (8112.4×10^{35})		S 4.0318
		10761.728 d	
b + 38.3966	U 2.4920×10^{38} (2492.011×10^{35})		U 4.4870
		30692.481 d	
a + 38.6637	N 4.6104×10^{38} (4610.415×10^{35})		N 4.7796
		60201.457 d	
s + 36.4698	P 2.9499×10^{36} (29.499×10^{35})		P 4.9571
		90594.326(days)	
e +			
10+	Md = Source mass × Source distance = N_0		
+	$m_1 d_1 = \text{destination mass} \times \text{destination distance} = N$		
+	$d_1 = \text{distance from the centre of the sun to the centre of the planet}$		
+			
+	$N_0 = Md = 1.989 \times 10^{30} \times (3 \times 10^4 \times 9.48 \times 10^{15}) = 56.5672 \times 10^{49} \text{ kg.m}$		
+	$d = \text{distance from the centre of the Milky way galaxy to the centre of the sun}$		
+			
+	-----1-----2-----3-----4-----5-----6- X-axis.		
	Sidereal period t (days), ($\log_{10} t$) values.		

The above plot again leads to the exponential graph verifying the earlier phenomenon. This is another method by which one can show and verify the phenomenon of **basic creation of the Universe from micro to macroactivity**.

Primary system

Measurement starts from Primary galactic centre or Milky way galaxy, distance $3 \times 10^4 \times 9.48 \times 10^{15} \text{ m}$ away from sun. We have $m_1 d_1 = Md e^{-\lambda t}$ is an exponential law and the quantities involved have their usual meanings. For convenience, the relation $m_1 d_1 = Mde^{-\lambda t}$ can be written as

$$N = N_0 e^{-\lambda t} \quad \text{-Eq-6.}$$

a) We have $N = N_0 e^{-\lambda t}$ and when $t = 0$ or immediately after when $t = 0$, $N = N_0 = Md$ gives the birth of the sun who has simultaneously ejected the galactic wastes that formed the planets of the solar system. It should be remembered that M represents the mass of the sun.

1. We write immediately after when $t = 0$, the source and destination time dependent relation as

$$M(d/T) = m_1(d_1/t) + m_2(d_2/t) + m_3(d_3/t) + m_4(d_4/t) + m_5(d_5/t) + m_6(d_6/t) + m_7(d_7/t) + m_8(d_8/t) + m_9(d_9/t)$$

where $M(d/T)$ represents the (m) , (l) and (T) characteristics of the source mass and $m_1(d_1/t)$ etc., represent the (m) , (l) and (t) characteristics of the destination masses.

2. It is seen from the above, as if placenta is not separated from the newborn, immediately after **when $t = 0$ state, and further secondary activity of the Primary galactic centre similar to the Big Bang, like Universe grew in 10^{-12} seconds from a point of zero volume to the size of our present solar system believed to be initiated by this galaxy.**

b) When $t = T$ we have source and destination period dependent, independent exponential relations exist for all the planets which are

$$m_1 d_1 = M d e^{-\lambda t}, m_2 d_2 = M d e^{-\lambda t}, m_3 d_3 = M d e^{-\lambda t}, m_4 d_4 = M d e^{-\lambda t}, m_5 d_5 = M d e^{-\lambda t}, m_6 d_6 = M d e^{-\lambda t}, m_7 d_7 = M d e^{-\lambda t}, m_8 d_8 = M d e^{-\lambda t}, m_9 d_9 = M d e^{-\lambda t}$$

and they take-over the next course of events in space that come on their way in course of time.

c) When $t = \infty$, we have $N/N_0 = 1/e^\infty = 0$, and hence $N/N_0 = 0$ or $N = m_1 d_1 = 0$ which means that all the active planets vanish out of sight representing the final stage of the solar system.

d) When $t = T$ (or immediately after when $t = 0$)

$$N = N_0 = Md = 56.5666 \times 10^{49} = 1.9890 \times 10^{30} (3 \times 10^4 \times 9.48 \times 10^{15}) \text{ kg.m}$$

When t is equal to

1. $T_{1/2}$, $N = N_0 / 2 = 28.2833 \times 10^{49}$, this middle region of Md is taken for the evaluation of λ

2. $T_{1/4}$, $N = N_0 / 4 = 14.1416 \times 10^{49}$

3. $T_{1/8}$, $N = N_0 / 8 = 7.071 \times 10^{49}$

4. $T_{1/16}$, $N = N_0 / 16 = 3.5354 \times 10^{49}$

5. $T_{1/32}$, $N = N_0 / 32 = 1.7677 \times 10^{49}$

6. $T_{1/64}$, $N = N_0 / 64 = 0.8839 \times 10^{49}$

$$7. T_{1/128}, N = N_0 / 128 = 0.4419 \times 10^{49}$$

$$8. T_{1/256}, N = N_0 / 256 = 0.2209 \times 10^{49}$$

$$9. T_{1/512}, N = N_0 / 512 = 0.1105 \times 10^{49}$$

Taking log. on both sides of the relation $N = N_0 e^{-\lambda t}$ ($\log_e N_0/N = \lambda t \log_e e$ where $\log_e e = 1$) and rearranging and converting it into the log. base 10 we have,

$$2.303 \log_{10}(N_0/N) = \lambda t \quad \text{-----Eq 7.}$$

We have when $t = T$, $N_0/N = 2$ as in Eq7 above, and hence $2.303 \log_{10} 2 = \lambda T$ which is $2.303 \times 0.3010 = \lambda T$.

Hence $0.693 = \lambda T$ or $\lambda = 0.693 / T$ and thus λ is evaluated from Eq7.

We have then from Eq-7, $2.303 \log_{10} N_0/N = (0.693/ T) t$ where N_0, N are source and destination parameters respectively.

$$\text{We have from the above, } t = (2.303 \log_{10} N_0/N) / (0.693 / T) \quad \text{----Eq 8.}$$

Note: **The steps for calculation of the destination period t from Eq 8 above.**

(1) Remember, for primary system, the value of $N_0 = 56.567 \times 10^{49}$ kg.m
 (2) Remember that $N_0 = M d$ and $N = m_1 d_1$ for $N_0 = 1.989 \times 10^{30} \times (3 \times 10^4 \times 9.48 \times 10^{15}) = 56.567 \times 10^{49}$ kg.m are source and destination parameters respectively. However, the destination values of N have to be calculated every time. Please see the Graph No.1 above for details regarding N_0 and N .

- (3) Find the value of N_0/N simply without the power parts.
- (4) Next find the log. value of this N_0/N
- (5) Add to this log. value, the difference of power parts to it.
- (6) Multiply it by 2.303
- (7) Divide it by 0.693
- (8) Multiply it by the source period T
- (9) Equate it to t and verify the result.

The value of λ is calculated at $N = N_0 / 2$ and when $t = T$ using relation $N = N_0 e^{-\lambda t}$ and thus $T = 0.693 / \lambda$. **Assuming $T = 25.38$ d, the axial rotational period of the sun, the value of $\lambda = 0.02731 \text{ day}^{-1}$ is calculated.**

You can use this solar system reference data table given below for some of the reference values required here for your calculations. As decimal values for hours, days and years are of concern in the results, specially more decimal values in data are preferred to promote accurate results.

Table: 1. The Solar System research data table, specially for Sun's rotating core or shell periods for sidereal periods (T_S) of the planets and also Sun's rotating core or shell periods for axial periods (T_A) of the planets.

Body	Equatorial Radius R/m	Mass M/kg	Distance from Sun d/m	Sidereal period of planet T_S	Sun's rotating core or shell period T_S ↓	Axial period of planet T_A	Sun's rotating core or shell period T_A ↓
Sun	6.960×10^8	1.989×10^{30}					
Moon	1.738×10^6	7.353×10^{22}	1.496×10^{11}	27.32 d		27.32d	
Mercury	2.42×10^6	3.301×10^{23}	5.791×10^{10}	87.97 d	1.607 d	58.7 d	1.0724 d
Venus	6.085×10^6	4.869×10^{24}	1.082×10^{11}	224.7 d	25.38 d	243 d	4.865 d
Earth	6.378×10^6	5.978×10^{24}	1.496×10^{11}	365.3 d	25.38 d	23.93h	0.485 h
Mars	3.375×10^6	6.420×10^{23}	2.279×10^{11}	687 d	25.38 d	24.6h	0.475 h
Jupiter	7.14×10^7	1.899×10^{27}	7.783×10^{11}	11.86 a	2.605 a	9.9 h	0.2538 h or 0.2605 h
Saturn	6.04×10^7	5.685×10^{26}	1.427×10^{12}	29.46 a	2.605 a	10.2 h	0.2538 h or 0.2605 h
Uranus	2.36×10^7	8.686×10^{25}	2.869×10^{12}	84.02 a	2.605 a	10.7 h	0.2538 h or 0.2605 h
Neptune	2.23×10^7	1.025×10^{26}	4.498×10^{12}	164.8 a	2.605 a	15.8 h	0.3933 h
Pluto	3.0×10^6	5×10^{23}	5.900×10^{12}	248 a	2.605 a	6.3 d	0.1327 d

Note: The periods are measured in hours (h), days (d) and years (a).

(1) The product of the mass of the sun and the mean distance from sun to the centre of the Milky way galaxy is taken as

$$N_0 = 1.989 \times 10^{30} \times (3 \times 10^4 \times 9.48 \times 10^{15}) = 56.5672 \times 10^{49} \text{ kg.m}$$

The product of the mass of the Earth and the mean distance from sun to Earth is taken as

$$N = 5.978 \times 10^{24} \times 1.496 \times 10^{11} = 8.9431 \times 10^{35} \text{ kg.m}$$

We have from $N = N_0 e^{-\lambda t}$, the value of $\lambda t = 2.303 \times 14.8011 = 34.0869$ or the value of $t_1 = 34.0869 / 0.02731 = 1248.375$ days.

As decimal values for days are of concern here, specially more decimal values are preferred in all calculations here.

However, this sidereal period includes the period of Venus, Earth, Mars with subtraction period of the Moon.

$$\text{We have, } t = t_v + t_E + t_M - t_{\text{Moon}}$$

$= 224.7 + 365.256 + 687 - 27.3 = 1249.636$ days. Maximum error of 0.1 % is seen when the calculated value of $t_1 = 1248.375$ is compared with the actual value of $t = 1249.636$ d

Note: We have $t = t_v + t_E + t_M - t_{\text{Moon}} = 224.7 + 365.256 + 687 - 27.3 = 1249.636$ d

It is seen that $224.7 + 365.256 + 687 = 1249.636 + 27.3 = 1276.936 \cong 1277$ d

(SELF VERIFICATION)

The corresponding core period of the sun responsible for the sidereal period of this planet is 25.38 d.

(2) The product of the mass of the Venus and the mean distance from sun to Venus is taken as

$$N = 4.869 \times 10^{24} \times 1.082 \times 10^{11} = 5.2683 \times 10^{35} \text{ kg.m}$$

We have from $N = N_0 e^{-\lambda t}$, the value of $\lambda t = 2.303 \times 15.0309 = 34.6162$ or the value of $t_2 = 34.6162 / 0.02731 = 1267.7589$ days.

However, this sidereal period includes the period of Venus, Earth, Mars with subtraction period of the unknown satellites of Venus, yet to be detected by the astronomers, and thus we have

$$t = t_v + t_E + t_M - (t_{\text{Unknown moon of Venus}})$$

$= 224.7 + 365.256 + 687 - (9.2411) = 1267.7589$ days. No error is seen when the calculated value of $t_2 = 1267.7589$ days is compared with the actual value of the period $t = 1267.7589$ days. Thus Venus has one satellite with period of 9.2411 days and it is yet to be detected in future by the astronomers.

Note: We have $t = t_v + t_E + t_M - (t_{\text{Unknown Moon of Venus}}) = 224.7 + 365.256 + 687 - (9.2411) = 1267.7589$ d

It is seen that $(224.7 + 365.256 + 687) = 1267.7589 + (9.2411) = 1277$ d

(SELF VERIFICATION)

The corresponding core period of the sun responsible for the sidereal period of this planet is 25.38 d.

(3) The product of the mass of the Mars and the mean distance from sun to Mars is taken as

$$N = 0.6420 \times 10^{24} \times 2.279 \times 10^{11} = 1.4631 \times 10^{35} \text{ kg.m}$$

We have from $N = N_0 e^{-\lambda t}$, the value of $\lambda t = 2.303 \times 15.5873 = 35.8975$ or the value of $t_3 = 35.8975 / 0.02731 = 1314.6866$ days.

However, this sidereal period includes the period of Venus, Earth, Mars with addition period of the satellites of Mars namely Phobos and Deimos and thus we have the period

$$t = t_v + t_E + t_M + (t_{\text{Phobos}} + t_{\text{Deimos}})$$

$= 224.7 + 365.256 + 687 + (7.65 + 30.2116) = 1314.8616$ days. Maximum error of 0.01 % is seen when the calculated value of $t_3 = 1314.6866$ days is compared with the actual value of $t = 1314.8616$ days. However, while studying this reality a jump of periods 7.65 h, 30.2116 h to 7.65 d, 30.2116 d are found here.

Note: We have $t = t_v + t_E + t_M + (t_{\text{Unknown Moons of Mars}}) = 224.7 + 365.256 + 687 + (7.65 + 30.2116) = 1314.8616$ d

It is seen that

$224.7 + 365.256 + 687 = 1314.8616 - (7.65 + 30.2116) = 1277$ d
(SELF VERIFICATION)

The corresponding core period of the sun responsible for the sidereal period of this planet is 25.38 d.

Inference: If we take the average of the periods $t_1 = 1248.375$ days for Earth, $t_2 = 1267.7589$ days for Venus and $t_3 = 1314.6866$ days for Mars, then $t = 1276.9402$ days. **However, the actual period of Venus 224.7 days, the period of Earth 365.3 days and the period of Mars 687 days are added we get 1277 days.** This result is in good agreement with the average sum of periods of Earth, Venus and Mars namely, $(t_1 + t_2 + t_3) / 3 = (1248.375 + 1267.7589 + 1314.6866) / 3 = 1276.9402 \cong 1277$ d

(INTERNAL VERIFICATION SHOWN AS ABOVE)

It is the group of planets Venus, Earth and Mars and if we take the average of the three calculated periods as the actual sum of the periods of these three planets, then we are referring it as one unit in the celestial system.

(4) We now calculate the product of the mass of the Jupiter and the mean distance from sun to Jupiter as

$$N = 1899 \times 10^{24} \times 7.783 \times 10^{11} = 14779.917 \times 10^{35} \text{ kg.m}$$

We have from $N = N_0 e^{-\lambda t}$, the value of $\lambda t = 2.303 \times 11.5829 = 26.6754$ or the value of $t_4 = 26.6754 / \lambda$ where

$\lambda = 0.693 / 0.2538 \text{ h} = 2.7305 \text{ h}^{-1}$. Hence $t_4 = 9.7694 \text{ h} \sim 9.8 \text{ h}$ which is in good agreement with the actual rotational period of Jupiter 9.9 hours. Maximum error of 1 % is seen when the calculated value of $t_4 = 9.7694 \text{ h}$ is compared with the actual value of $t_4 = 9.9 \text{ hours}$.

(SELF VERIFICATION)

The corresponding core period of the sun responsible for the axial period of this planet is 0.2538 h.