The evoluting process of Astronomical object is demonstrated by the principle of inertia

HeQun[1*] ,HeXuan[2]
[1] College of Computer and Information Engineering,NANJING TECH UNIVERSITY,Nanjing,China
[2] Nanjing GuoCE Zhonghe Architectural Design Co. Ltd, Nanjing,China
*Corresponding author, hequn@njtech.edu.cn

Abstract: In view of the nebular hypothesis of the origin and evolution of the solar system and the related problems of denying the hypothesis due to the mismatch between angular momentum and mass distribution, the theory of Nebular is based on the law of gravity, while the angular momentum distribution is based on the principle of conservation of angular momentum in the motion of objects. The former mainly involves the static process of the mass of an object, while the latter involves the dynamic process of an object. According to the angular momentum conservation argument of general relativity on distorted Space-Time and the principle of natural inertial evolution, the equilibrium relationship between the planet (Earth) and the natural satellite (moon) is obtained according to the balance equation of the earth-moon system, and the extreme distance between the natural satellite and the planet is obtained, that is, the maximum value that can be obtained if the moon and the earth are in balance. This value is basically consistent with the current state of the moon. Secondly, the relationship between stars (sun) and planets (eight planets) is analyzed in a similar way, and the extreme distance between Jupiter (among the planets in the solar system, it has the heaviest mass, the fastest rotation, a moderate distance from the sun, and the orbital period is completely synchronized with the sun) and the Sun is calculated according to the equilibrium equation, and the current distance value of the eight planets is compared with the extreme distance in proportion. The extreme distance of each planet is obtained, and it is concluded that Mercury has exceeded the extreme distance of merging by the sun (system), that is, it is in the early stage of merging; Pluto is on the verge of equilibrium with the Sun; The extreme value of eccentricity for determining the state of the planet is given. Based on the mass energy equation and the characteristic data of the evolution of the solar system, it is shown that the planets in the solar system are angular momentum equilibrium relations characterized by moment of inertia and constrained by inertial surge force equilibrium. The energy source of planets formation and the equilibrium relationship of merger is explained in detail by the two basic arguments of stellar radiation heat energy and inward inertial rotation force. This method will be of great practical value to the exploration of celestial bodies.

Keywords: Solar system;nebula theory;conservation of angular momentum,moment of inertia;balance equation; gravity theorem;inertial surge moment

1. Introduction

The nebular hypothesis of the evolution of the solar system is widely accepted because of philosophical and mechanical and mathematical arguments, the basic idea of the nebular hypothesis is that the solar galaxy evolved from a diffuse nebula and was formed by its own gravity. However, nebulae theory has no reasonable explanation for the mismatch between the angular momentum and the mass, the inconsistency of the inclination of the planets' spin axes, and the difference in the formation of solid and gas planets (XUE Shanfu,2011) .Because the main theoretical basis of the nebula theory is the law of gravity, we must first demonstrate whether gravity exists. After the theory of relativity proposed the mass-energy equation, the existence of gravitation was denied by the geometric effect of distorting space-time, and the correctness of these two theories was proved by the practice of nuclear reactions and light deflection .First, the mass-energy equation $E=MC^2$ is generalized to $E=MV^2$ from the dimension, that is, a space object with mass (M) has energy (E kinetic energy) as long as it moves (V), which is an equivalent relation. The kinetic energy makes the object itself rotate toward the center to maintain balance, while the surging air emits a swirling torque toward the center. The swirling torque (inertial surge force) will merge (a star gradually acquires the mass of another star through its inertial surge force and combines it into one star) the other object, and will gradually increase its mass and its kinetic energy. This mass-energy equation explains the power source of the natural growth of space objects. The second is how to determine the limiting value of the merging distance between the planets. The inertial balance equation of the natural inertial evolution principle of space objects (Qun He,2024)proves the gravity (acceleration) value of the earth and the moon, which is basically the same as the actual measured value, and is used as the calculation formula for the balance between the planets. Starting from these two arguments, the extreme distance of the earth merging with the moon is obtained by using the equilibrium equation of the earth and the moon, and the merging way of the planet to the satellite is explained. This method is then extended to the solar system to illustrate the merging mode of stars to planets. The extreme distance of the sun merging with Jupiter, obtained by the equilibrium equation between Jupiter (among the planets in the solar system, it has the heaviest mass, fast revolution, moderate distance and the same period as the sun) and the sun, is used as the standard extreme value for comparison.By comparing the current distance of the eight planets from the sun with this value, the extreme distance of the eight planets to be merged by the sun was obtained. Comprehensive analysis shows that the Earth-moon system is a binary star system and the solar system is a multi-star system, both of which revolve at the equilibrium point of the system. The planets in the solar system generate the inertial influx force to the center and form a material vortex, under which the sun emits light and radiates heat energy outwards. Extrasolar objects gain heat and gradually change the extremely cold air from gas to ice, and the outward swirling currents of the solar system introduce such icy objects from the outer solar system into the system. Finally, the origin, development and death cycle of the planets in the solar system are described by the mass-energy equation and related data. Section 2~4 is mainly quantitative calculation, Section 5 is combined with the calculation results into a comprehensive explanation.

2. Inertial surge force and inertial balance equation

General relativity holds that the rotation of objects with small mass in space is a geometric effect caused by objects with large mass distorting space-time (RUAN Xiaogang, 2023). Firstly, it points out that space has a strong medium density, which not only balances its own rotation here, but also distorts the surrounding space-time to make other planets balance. Distorting Space-Time is an abstract interpretation of momentum, which is essentially a directional air swirl (inertial surge force) generated by an object spinning air during its rotational operation in space (Qun He, 2024). For the Earth (planet), inertial surge force is its outer rotating atmosphere, and the strongest place is called the black barrier area. For the Sun (star), the inertial surge force is a very dense layer of gas produced by rotating nuclear fusion around the sun, and the strongest force is where the light is most deflected, known as the Einstein ring(ZHAO Fan et al.,2018). Inertial surge moment is represented by the equilibrium equation of the two (or more), and the solution of the equation can reflect the degree of correlation between the two moments. The gravity (acceleration) value of the moon and the earth has been calculated from the equilibrium equation of the earth and the moon (Qun He, 2024), thus proving that there is no gravity.The equation is a quadratic equation with one variable. The extreme distance of a planet merging with its satellite can be obtained by solving the extreme value of the equation. For a star system, the extreme distance of the planets merging with the star system can be obtained by using this method.

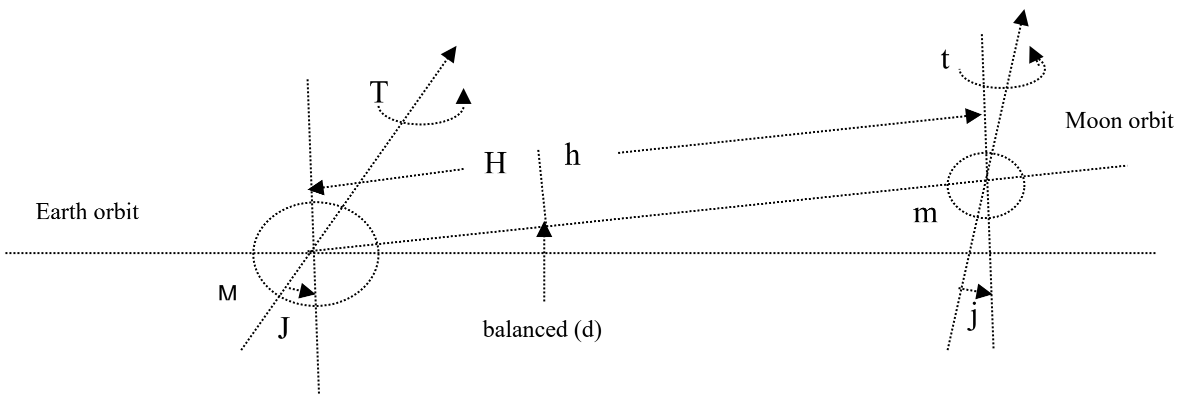

Fig1 Diagram of the equilibrium relationship between two planets

Let the masses of the two stars be M and m respectively, as shown in Figure 1, according to the formula of moment of inertia of the real rigid sphere (WANG Xiao et al.,2024)and the principle of parallel axis of moment of inertia(YAN Min et al.,2020). The equation of equilibrium between the two stars is as follows (Qun He, 2024):

$$(2/5)MR^2+MH^2=((2/5)mr^2+mh^2)t\times j/(T\times J) \qquad (1)$$

M and m are the respective masses of the two stars;

H and h are the distance between the two from the equilibrium point d;

T and t are the angular values of their respective rotations in a measured period;

J and j are functions of their respective rotation angles based on the plane of the linear distance between them;

Substituting the known scale values M=x × m, R=y×r 以及 Z= T×J /(t × j) into the equation, there are

$$2mr^2+5mh^2 =2Z(x\times m)(y\times r)^2+5Z(xm)H^2$$

Eliminate m

$$2r^2+5h^2=2xZ(y\times r)^2+5xZH^2 \qquad (2)$$

By substituting H= p-h(the average distance from M to m p = h+H) and expanding the parentheses

$$5(1-xZ)h^2+10xZph+2r^2(1-Zxy^2)-5Zxp^2 \qquad (3)$$

This is a quadratic equation with one variable and its parameters are

$a=5(1-xZ)$ $\qquad$ $b=10xZp$ $\qquad$ $c=2(1-Zxy^2)r^2-5Zxp^2$

3. The extreme distance between the planet and its natural satellite

Three quarters of the planets in the solar system have their own natural satellites, the smallest number of natural satellites and the most detailed data is the Moon, so the extreme value of the planet and its natural satellites can be obtained from the Earth and lunar system.

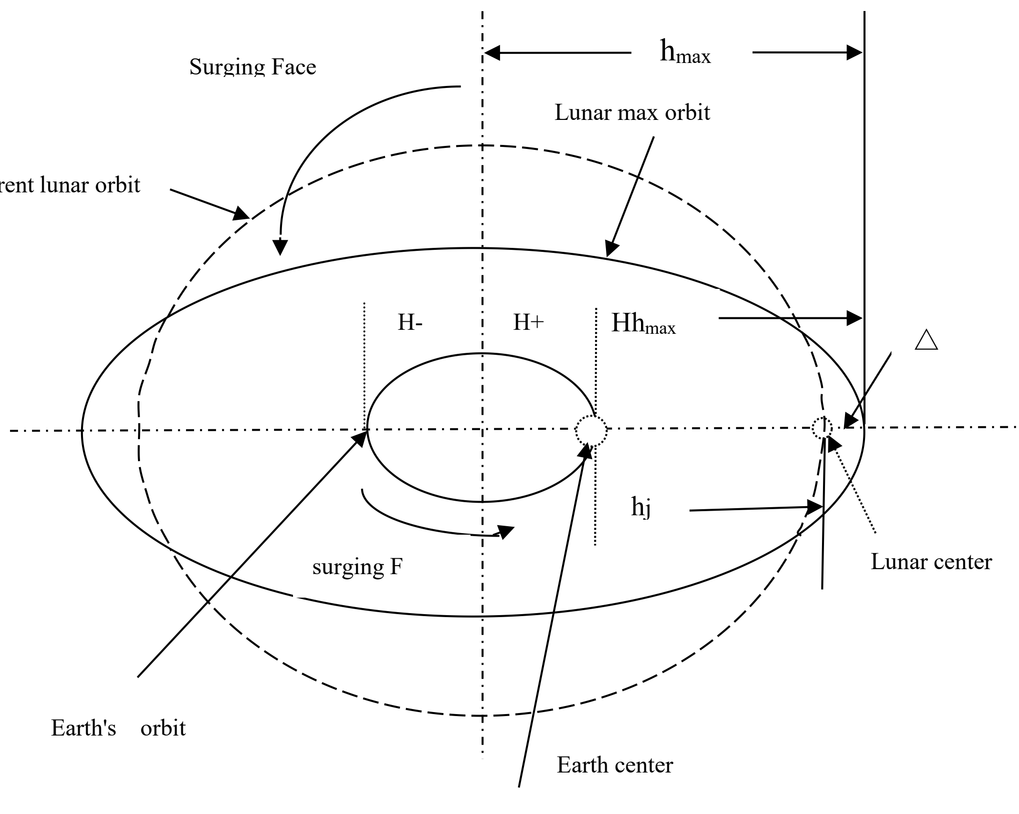

Fig2 Diagram of distance extremum of Earth-Moon equilibrium

According to the inertial balance equation of the two stars given in the above section, for formula (1), the masses of the Earth and the moon are respectively M and m, the radii are respectively R and r, the average distance between the Earth and the moon P=H+h, the radius of the moon r, the current near-earth distance of the moon hj, and the average distance between the Earth and the moon is calculated as follows: (The following data is provided by the National Earth System Science Data Center, the distance is km, the weight is kg, the same below)

$x=M/m=81.3$, $y=R/r=3.66$, $p=384,044$, $r=1737$, $h_j=363,300$

The Angle of rotation of the Earth and the moon in a month is $T=27.32\times2\pi$, $t=2\pi$, If the Angle of intersection between the rotation axis of the Earth and the Moon and the normal of the linear distance plane between the earth and the moon is 28° or 3°, then

$$J=1/\cos(28°)、j=1/\cos(3°),$$

There are

$$Z=J\times T/(t\times j)=\cos(3°)\times 27.32/\cos(28°)=30.8994$$

F (h) = equation (3), because for a = 5 (1 - xZ), = 81.3 x and Z = 30.9, then a < 0, so the equation (3) have great value. Take the derivative of f(h)

$$df(h)/dh=2\times ah+b$$

If df(H)/dh=0, then the maximum (plugging in the relevant data above) is

$$h_{max}=-b/2a=-10xZp/(2\times 5(1-xZ))=xZp/(xZ-1)$$

$$=81.3\times 30.9\times 384{,}404/(81.3\times 30.9-1)$$

$$=384{,}557$$

Substitute h_{max} into equation (2) to find the equilibrium value H of the Earth orbit

$$H^2=(2r^2+5h^2-2xZ(y\times r)^2)/(5xZ)$$

$$=42{,}700{,}834.39$$

Then there is

$$H=\sqrt{42700834.39}=\pm 6534.58$$

As shown in Figure 2, the positive distance of h_{max} to Earth at this time is

$$Hh_{max}=h_{max}-(H+)=384{,}557-6534.58=378{,}022$$

The difference between this value and the measured current lunar near-earth distance is

$$\triangle= Hh_{max}-h_j=378{,}022-363300=14{,}722km$$

As shown in Figure 2, the △value is the extreme distance at which the Moon can maintain equilibrium in its current state. When △<0, the moon will be completely controlled by the Earth's inertial surge force until it is merged by the Earth. According to the analysis of the data of the current orbit of the Moon, it is relatively stable in the late stage, because the eccentricity (0.0549) is medium, but its revolution and rotation have been synchronized with the orbit of the Earth. From the overall analysis of the Earth-moon system, the planets close to the center of the solar system have no satellites, such as Venus and Mercury, so the Earth will eventually merge with the moon.The process of how planets (Earth) merge with natural satellites (Moon) is described in section 5.

4. Extreme distance between star and planet

The solar system has eight planets, and each planet's position in the orbit is not fixed, which leads to the problem of non-conservation of angular momentum distribution, through the inertial balance equation can solve this complex relationship. First of all, the distance of these planets relative to the sun is basically fixed, from the eight planets to find a typical planet, so that it and the sun constitute a binary star system, that is, the formation of the earth and the moon model, using a similar balance relationship between the earth and the moon to obtain the extreme distance between the two, and then through the proportional relationship between the planet and Jupiter to obtain the extreme distance of each planet.Of the eight planets, Jupiter is such a planet, it is in the middle of the solar system, the heaviest of the planets and the fastest rotation, the cycle of the movement of the sun. The two terms of periodic synchronization and fast rotation (large momentum) indicate that the sun mainly balances the inertial surge force of Jupiter, so the form of the equilibrium equation between the sun and Jupiter is the same as that of the two-star equilibrium equation in Section 2, and the method of calculating the extreme distance is the same as that of the Earth and the Moon in section 3.Table 1 shows the main parameters of the planets in the solar system. The distance is in AU unit, and all parameters, except the intersection parameters and eccentricity, are processed with the value of Earth parameters as multiples.

First determine the relevant parameters according to the requirements of equation (1)

x=(M)/(m)=(solar mass)/(Jupiter mass)=332,946/317.94=1,047,

y= (R)/(r)=(Sun radius)/(Jupiter radius)=108.968/11.209=9.721,

P = the average distance between the sun Jupiter =5.2×1(AU)=5.2×149,597,870=777,908,924,

r= Jupiter radius =11.209× Earth radius =11.209×6,387=71,591

Since Jupiter orbits the equilibrium point of the solar system in 11.86 years and 0.375 days, while the Sun orbits the equilibrium point in 11.86 years and rotates in 25.38 days, Jupiter rotates in 11.86 years (11.86 years /0.375 days)×2π. In

11.86 years, the Sun rotates (11.86 years /25.38 days)×2π.namely

$T=(11.86 \text{ years} /25.38 \text{ days})\times 2\pi, t=(11.86 \text{ years} /0.375 \text{ days})\times 2\pi$

j= Jupiter Angle function =1/cos(3.13°), J= Sun Angle function =1/cos(0°). the

$Z= T\times J /(t\times j)= \cos(3.13°)\times 0.375/(\cos(0°)\times 25.38)=0.0147534$

Equation (3) is the standard equation for the equilibrium of two stars and is a quadratic equation with one variable

$$ah^2+bh+c$$

Its parameters are

$a=5(1-xZ)$ $b=10xZp$ $c=2(1-Zxy^2)r^2-5Zxp^2$

Since a=5(1-xZ)<0, this quadratic equation with one dollar has a maximum value, the same as the solution of the quadratic equation with the earth and the moon in the previous section

$$h_{max}=-b/2a=-10xZp /(2\times 5(1-xZ))=xZp/(xZ-1)$$
$$=1,047\times 0.0147534\times 777,908,924/(1,047\times 0.0147534-1)$$
$$=12,016,386,005.134/14.447$$
$$=831,756,489$$

Find the value of H, substitute h_{max} into equation (2), and get after sorting

$$H^2=(2r^2(1-xZy^2)+5(h_{max})^2)/(5xZ)$$
$$=(2\times(71, 591)^2(1-1,047\times 0.014753\times(9.721)^2)+5(831,756,489)^2)/ (5(1,047\times 0.014753))$$
$$=44,788,188,166,516,950.32$$

The solution is H=±211,632,200

Referring to the previous section, the distance from h_{max} to the Sun is

$$Hh_{max} =h_{max}- (H+)=831,756,489-211,632,200 =620,124,288.788$$

Convert H h_{max} (Jupiter's extreme distance from the Sun) to AU

$$Hh_{max} =620,124,288.788 /149 ,597,870=4.14527485 \quad (AU)$$

set

Kj=(extreme distance of Jupiter from the Sun)/ (closest distance of Planet X to the Sun)

$=Hh_{max}$ /(X. perihelion)

Kp= (average distance of Jupiter from the Sun) /(average distance of Planet X from the Sun)

=(Jupiter. Mean distance from the Sun)/(X. Mean distance from the Sun)

Kj: Extreme intensity of X planet from the sun;

Kp: The average intensity of the X planet from the Sun.

Table1 Related and extended data of solar system planets

Name	Mass	Ads	Radius	Revo	Rota	IA	Perih	e	Scs	△
Mer	0.0553	0.387	0.383	0.24	58.64	0.034	0.30749	0.20562	13.48061	−0.01350
Ven	0.815	0.723	0.949	0.62	−243.02	177.33	0.7205	0.00681	5.7533	1.036744
Ear	1	1	1	1	1	23.44	0.9833	0.01667	4.2156	0.967885
Mar	0.1074	1.524	0.532	1.88	1.026	25.19	1.381	0.09333	3.00164	0.566793
Jup	317.94	5.20	11.209	11.86	0.375	3.13	4.95	0.04891	0.837429	0.804725
Sat	95.11	9.576	9.449	29.46	0.427	26.73	9.54	0.05392	0.434515	1.035174
Ura	14.53	19.218	4.007	84.01	−0.714	97.77	18.3755	0.04315	0.225587	0.826584
Nep	17.15	37	3.883	164.8	0.653	28.32	29.85	0.01125	0.13887	0.049859
Plu	0.0022	39.5	0.19	248	6.4	17.16	30	0.2488	0.138175	−0.19590
Hal	$1.5*10^{-6}$	35.31				162	0.59	0.97	7.025889	−4.05838
Sun	332,946	0	108.968	11.86	25.38	0	0			

Ads: Average distance from the sun; Revo; Revolution; Rota: Rotation; IA: Intersection Angle; Perih: Perihelion

Scs: Strength close to the sun;△: The proportional increase in the extreme value.

Let △ be the increment of the extreme value, and obtain the ratio of Planet X (one of the eight planets) to Jupiter based on the extreme formula of Jupiter and the sun, then

(Extreme distance between Jupiter and the Sun Hh_{max} +△)/(closest distance between Planet X and the Sun)

=(Average distance of Jupiter from the Sun) /(Average distance of Planet X from the Sun)

Then there is

△=(average distance of Jupiter from the Sun)/(average distance of Planet X from the Sun)

×(closest distance of Planet X from the Sun)-(Jupiter's extreme distance from the Sun Hh_{max})

=Kp×(the closest distance of Planet X to the Sun) - Hh_{max} (4)

△ The distance (AU unit) from the current position of Planet X to its extreme point is directly obtained, and there are three cases

△>0, is the distance of X Planet from its extreme point;

△=0, indicating that the current state of Planet X is at the extreme critical point, about to be merged by the sun;

△<0, when the position of planet X is between Jupiter and the Sun, it means that Planet X has exceeded the extreme point and has been merged by the sun. The greater the value, the greater the intensity of merging, and vice versa; When planet X is located between Jupiter and the edge of the solar system, the value indicates that it has exceeded the extreme point that can maintain a balanced relationship with the solar system, and the greater the value, the greater the degree of loss of control. According to the known data (input) in Table 1, corresponding data (output) are calculated and filled in Table 1.

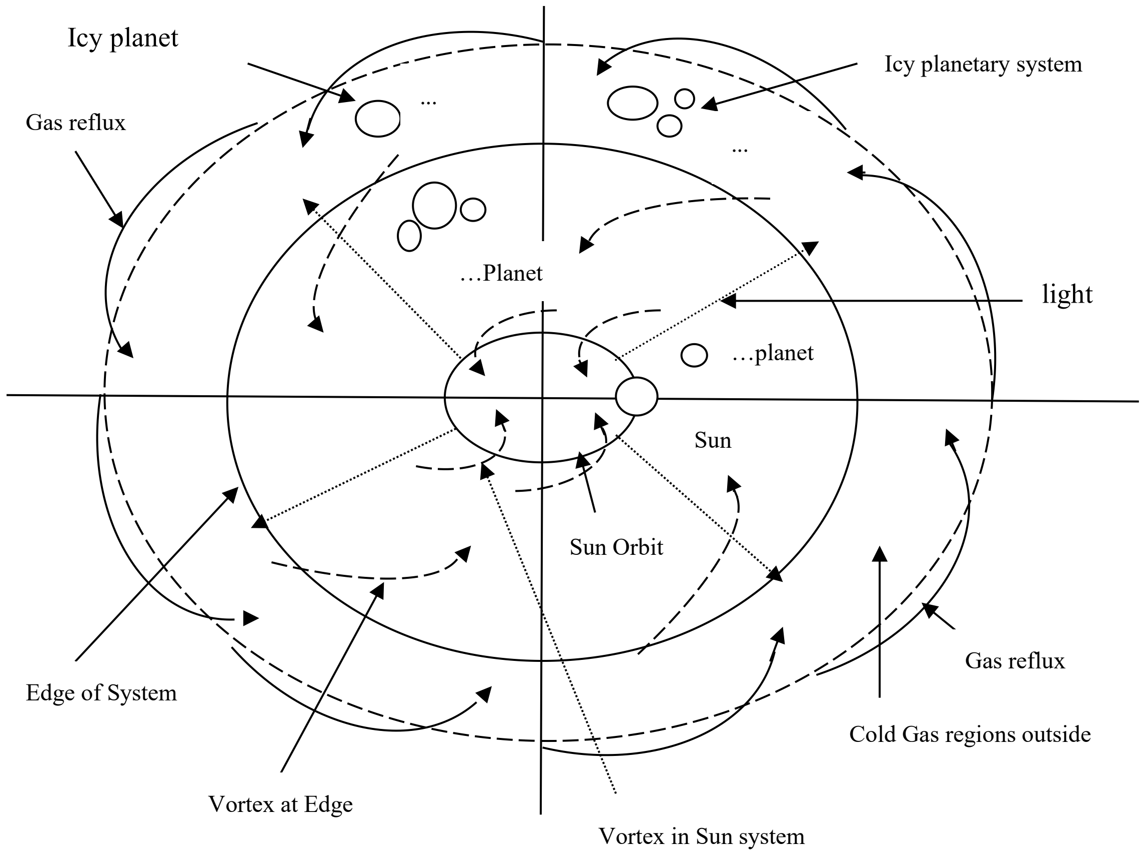

Fig3. Diagram of the dynamic equilibrium flow in the near 0° plane of the solar system

5. Conclusion

As shown in Figure 3, the swirling air of the planets in the system with the Sun as the main body naturally rotate around the center of the equilibrium point. These swirls keep the entire solar system in equilibrium in space and continuously surge swirls (gas reflux) into the extremely cold region of the outer system (the icy zone of the outer solar system) to form extremely cold gas.Its energy is derived from the mass and velocity of the natural inertial of the After entering the solar system, the icy planet gradually evolved from icy to gas-like, and finally formed the rocky planet, which was gradually merged by the sun. Such a cycle to maintain the energy balance of the system, evolved the various forms of the stars of the solar system, is a complete energy balance system. which is characterized by the gradually large moment of inertia generated by the planets and the constraint relationship between the planets is determined by the inertial balance equation.The planet and its satellite are also a centripetal rotating sub-celestial body. The planet gradually merged with its satellite and gained energy and gradually spiraled toward the center of the solar system. The sun was extruded by the centripetal rotation force of the planets in the system (including air swirling) to obtain energy and emit heat energy (sunlight). The closer a planet is to the center of the solar system, the more crushing it will be. When planets get close to the Sun, they are merged by the Sun, which causes the sun to continuously increase its energy. The radiation of light energy in the outer solar system (the outer ice belt of the solar system) creates a temperature difference that gradually changes the strong cold gas into an icy object (the icy planet outside the solar system), while the inertial influx force at the edge of the solar system (the edge swirl) gradually spins from the outer solar system into the icy object that has a slow inertial equilibrium (the outer ice planetary system).After entering the solar system, the icy planet gradually evolved from icy to gas-like, and finally formed the rocky planet, which was gradually merged by the sun. Such a cycle to maintain the energy balance of the system, evolved the various forms of the planets of the solar system, is a complete energy balance system.

5.1 Sources of kinetic energy

Space objects evolve by natural inertial motion(Qun He,2024). It starts to move in inertial motion and send out inertial air swirl when they have mass because of internal imbalance. In addition, because of the external space imbalance caused by swirl of each object, the object gradually naturally forms its own orbit, so the source of its kinetic energy is its natural inertial motion and external air swirl. The theory is a generalization of the mass-energy equation $E=MC^2$, $E=MV^2$, in which E and $E=MV^2$ are equivalent relations, that is, an object (M) with mass has energy ($E=MV^2$) as long as it moves (V), and the mass imbalance within the object (M) makes this movement naturally form centripetal rotation. This energy not only causes M itself to rotate in equilibrium in space but also sends out the inertial surge rotation force to accelerate its own centripetal rotation, spinning into the epitaxial object, increasing its own moment of inertia and squeezing the central star to shine and radiate light energy. From the paper of natural inertial Evolution of space objects(Qun He,2024), it has been proved that the gravity (acceleration) of stars comes from the associated inertial movement between stars. Now, the inertial balance relationship of stars in the solar system is given, and the following conclusions are drawn:

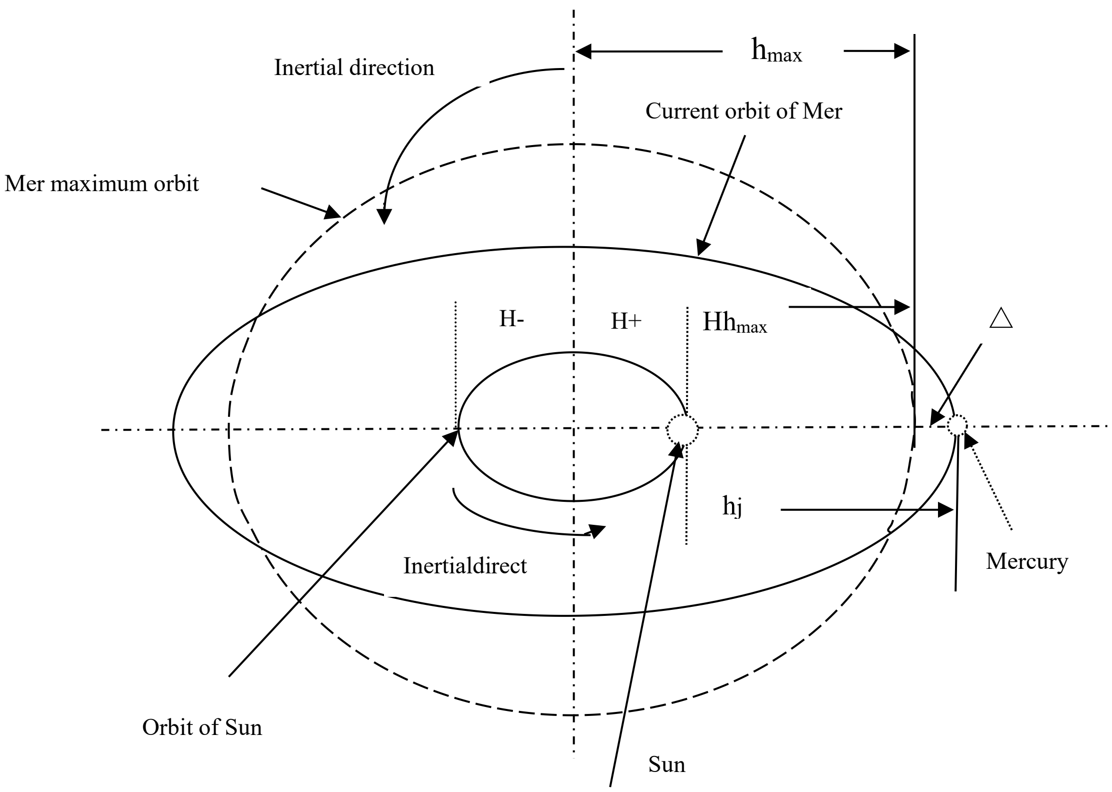

Fig4. Diagram of Mercury's current state

1) The kinetic energy of a star is naturally acquired by its rotation, and its momentum is represented by its moment of inertia, as shown in Figure 3. Inertial motion is the centripetal acceleration (astronomical slow speed) rotation, which

gradually spins in the epitaxial object (including air), so that it maintains balance in space and compressions towards the central equilibrium point.

2) The Earth and the moon are binary star systems, both of which revolve around the inertia equilibrium point of inertia, and the solar system is a multi-star system, with the Sun and planets rotating around their common equilibrium point of inertia.Similarly, the inertial rotation forces of the solar system also spin extended objects (including air) into the system, causing them to balance in space and rotate toward the center.Planets undergo the evolution of icy (Neptune, Uranus), gaseous (Saturn, Jupiter), rocky (Mars, Earth, Venus, Mercury), and luminous (Sun) states in the process of sunlight and inertial marching gradually, and the natural satellites of the planets are gradually merged by the planets.In the solar system, the greater the extreme strength of the planet, the fewer the natural satellites and the higher the density of the star. Obviously, this is a kind of extrusion process of the rotational flow of the object to the inertial motion.

5.2 Inertial merging between stars

The satellite of a planet naturally moves gradually toward the center of equilibrium of the system. When the satellite's distance from the planet exceeds the extreme value (the maximum inertial rotation capacity of the satellite), it begins to gradually lose its inertial balance with the planet, and the satellite's rotation force is weakened and the orbital eccentricity is increased.Due to the increase in eccentricity, the satellite will impact by grinding with the inertial surge force of the planet every time at the near-planet point under the action of the inertial rotation force of the planet, which is a positive feedback arc-pulling process, and every time part of the lost mass of the satellite will be absorbed by the planet and further accelerated by the inertial surge force of the planet (due to mass reduction). The meteor shower is a representation of the planetary merging satellite.In this way, the mass of the planet itself is gradually increased (that is, the moment of inertia is increased), and the orbit of the satellite is gradually evolved into an asteroid beyond the original planetary system and into the solar system due to the gradual reduction of mass, and the orbit is chaotic after the mass is very small and out of control.how light and heavy the mass is,The process of a planet merged by star is similar to the process of a satellite merged by planet, That's just how light and heavy the mass is,and just how far and near the distance is, because of the sun's strong inertial surge rotation, the orbit of the merging planet gradually evolves into a comet beyond the solar system. Illustrate with actual situation

1) Refer to Section 3 and Figure 2. △=14,734KM is the distance of the moon to its extreme value in the current state. The moon is in a stationary stage with the Earth (astronomical time), its average eccentricity is about 1/18, which is slightly higher but its rotation ability is weak, always facing the sun and its rotation is completely synchronized with its revolution.If its eccentricity increases and its orbit is elongated, it will be merged by Earth after △<0. In astronomical time, the moon will evolve into the next asteroid created by the Earth-Moon system, specifically, the asteroids that now orbit the Earth in the Earth-Moon system are the Moon's predecessors, and they will gradually impact by grinding by the Earth's increasing inertial surge force until they are completely grinding out.Its span depends on the strength of the planet's inertial surge force, generally in the scope of the solar system, the wandering asteroid is the remnant of the planet is impacts by grinding, the specific eccentricity reaches how much the moon reaches the extreme value see 5.3 details.

2) Refer to Section 4 and Table 1 and Figure 4, the increment of Mercury's extreme value △=-0.01350(AU) has exceeded the critical extreme point of 0 value, has entered the early stage of being merge by the sun, its eccentricity is greater than 1/5 and it loses its ability to spin, is in a undergoing precession, and always faces the sun and its rotation can not keep up with the revolution.In astronomical terms, Mercury will soon evolve into the next comets formed by the solar system. To be precise, the comets now orbiting the equilibrium point in the solar system are also Mercury's predecessors, and they are gradually spinning away their mass by the continuous inertial surge of the Sun until they are completely spinning out.Its range depends on the strength of the sun's inundation force, and generally extends beyond the solar system. That is, the comet currently active is a planetary remnant that the sun is spinning and absorbing, and the planet reaches the extreme value when the specific eccentricity reaches how much is explained in 5.3.

5.3 Solar System

Internal imbalance and rely on their own mass (moment of inertia) natural centripetal rotation to maintain their own balance is the basic property of stars, external imbalance and rely on the inertia of each star natural centripetal rotation to maintain the balance of stars is the basic property of stars. This process is a complete evolutionary process of space objects. See Figure 3 and Table 1 for a complete evolutionary chain of the evolution of planets in the solar system.

1) Initial state of planetary system: In the extreme cold area of the extension of the solar system, affected by the weak

thermal radiation of the solar system, the cold air slowly forms an icy object, which also has a natural process of slowly rotating and squeezing to the center to form an icy planet, and the icy planetary body is slowly rotating to the system under the guidance of the inward inertial rotation force of the solar system, which also has the property of centripetal inertial rotation. The icy planet gradually compacted and entered the solar system. During this period, the inertial rotation of the planet was only weakly related to the inertial rotation of the solar system, and it was in the state before the formation of Pluto(△=−0. 19590).

2) Planetary growth: the planet is first in a state of ice, when its large volume and low density (Uranus, Neptune density of 1.29, 1.64 grams/per cubic centimeter), relatively many satellites (Uranus, Neptune satellite number of 27, 14); Secondly, it is in the gas state, when its volume reduction density is still low (Saturn, Jupiter density of 0.69, 1.33), because of its large mass so many satellites (Saturn, Jupiter's number of satellites is 62, 69); After that, it is rocky (terrestrial) with high density (3.95-5.43 for Mars to Mercury) and few moons (2 for Mars and 1 for Earth), and the density of the Sun's core may reach 160.Obviously, the closer the planet is to the sun, the higher its density, and the extreme value intensity in Table 1 is an expression of the inertial equilibrium relationship between the planets and the sun.

3) Planet death: The sun's inertial surge force on the planet is strengthened, and the planet's inertial surge force is gradually weakened, so that it is eventually merged by the star to form a comet.

4) Balance range of inertia: See Table 1. In the △ item, Mercury and Pluto are -0.0135 and -0.959 respectively, in the equilibrium state of merging and leaving the solar system, and the corresponding eccentricities are 0.2056 and 0.2488 respectively.Obviously, e is the parameter that best describes the state of the star, especially the extreme eccentricity ej towards the Sun and the equilibrium extreme eccentricity er away from the sun. According to equation (4), let e△ be the eccentricity increment corresponding to △, and the direction of the near Sun has

(e Mercury)/Hh_{max}=(e△)/| Mercury △| the

(e△)=(0.2056*0.0135)/4.14527485=0.00066958,

ej=(e Mercury)- (e△)=0.20562-0.00066958=0.20495

In the direction of the far Sun

(e Pluto)/Hh_{max}=(e△)/| Pluto △| the

(e△)=(0.2488×0.1959)/4.14527485=0.0117579,

er=(e Pluto)- (e△)=0.2488-0.0117579=0.2370

The two extreme eccentricity equations ej and er are very practical, as long as the eccentricity of the star is measured, it can be known that it is in the extreme state. It is obvious that the balance range of inertia in the solar system is given by these two eccentric extremes, that is, the eccentricity of the planet is between ej~er.

REFERENCES

JI Yang. On gravitational microlens effect [J]. Chinese Journal of Nature, 2018, 40(5):376-378.(in Chinese) doi: 10.11936/bjutxb2022040007

Qun He.The inertial principle is used to demonstrate the force source of space planets.https://doi.org/10.51094/jxiv.924

RUAN Xiaogang. General Observational Relativity: Why is Spacetime Curved in Einstein's General Relativity? [J]. JOURNAL OF BEIJING UNIVERSITY OF TECHNOLOGY, 2023, 49(2):103-178.(in Chinese). doi:10.3969/j.issn.0253-9608.2018.05.008

WANG Xiao, xiong JIANG Liyong.An improvement on the moment inertia measurement of the rigid body [J]. PHYSICS EXPERIMENTION, 2024, 44(9):22-26.(in Chinese). doi:10.19655/j.cnki.1005-4642.2018.10.004

XUE Shanfu. A Research on the Origin and Evolutionary Theory of the Solar System [J]. ACTA ASTRONOMICA SINICA, 2011, (5):385-391. (in Chinese).(in Chinese). doi:10.15940/j.cnki.0001-5245.2011.05.004

YAN Min, DAI Yuqin, YUAN Jun.An improvement to the verification of parallel axis theorem for moment of inertia[J]. COLLEGE PHYSICS, 2020, 39(5):66-69.(in Chinese). doi:10.16854/j.cnki.1000- 0712.190392

ZHAO Fan,HE Feng ,REN Wenhui . Einstein’s ring of a distant star formed by the sun’s gravity [J]. COLLEGE PHYSICS, 2018, 37(5):49-51.(in Chinese).
doi:10.16854/j.cnki.1000- 0712.170546