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The Relation between Strict Stability and Riemann Conjecture

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Abstract：*In this paper, the stability theorems and strict stability theorems of two rotating object equilibrium motion systems are proposed. The relation between strict stability and Riemann conjecture is expounded.*
Key words: *rotation balance; Strict stability; Riemann hypothesis*

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I. Introduction

A rotating object generates a gravitational wave field, and two rotating object motion systems generate entangled forces that tend to balance.

In this paper, we study two rotation object balance and stability of system. The influence and effect of other third parties on the system motion are not considered.

The stability in this paper requires not only the stability between motion periods, but also the real-time stability (everywhere stability) of energy changes. The monotonicity of energy change and function increment is required. It's called strictly stable.

The two axes of an equilibrium motion system of two rotating objects are perpendicular to each other. The respective velocities of two systems of equilibrium motion of rotating objects are constant.

II. Stability theorem of two rotating object motion systems

Lemma 1：If the motion system of two rotating objects is balanced and stable, the motion track is a spring circle track.

Lemma 2: let a point on the spring center line be the origin of polar coordinates. Then, the spring equation can be expressed as $r=a+b\theta$ spiral. In rectangular coordinates you can express it as a Riemann function.

Definition 1: (strict definition of stability) An object that is in periodic motion of the spring helix, the incremental net force perpendicular to the spring axis in each period is equal to zero, and the incremental net force perpendicular to the spring axis at any time is equal to zero. (ensure that the change in energy at any time satisfies monotonicity). It is said that the motion system meets the strict stability movement rule.

Theorem 1 :(the stability theorem of a rotating object motion system)

The trajectory function $y=f(x)$ of a rotating object motion system is stable. So the change in $y=f(x)$ satisfies the linear equation.

The sum of all the increments perpendicular to the axis of rotation in each period is equal to 0 (but not necessarily everywhere, which may have symmetry).

Theorem 2 :(strict stability theorem for a rotating object motion system)

The trajectory function $y=f(x)$ of a rotating object motion system is strictly stable. Then the increment of this function $y=f(x)$ satisfies the linear equation, and the sum of all the changes perpendicular to the axis of rotation at any time is equal to 0. (the change in energy at any time satisfies the monotonicity)

III. Properties of strict stability of motion systems of two rotating objects

According to lemma 1, the motion system of two rotating objects is balanced and stable, so its trajectory is a spring circle trajectory.

Let's call these two rotating objects A and B. For the convenience of analysis, A or B are taken as static references respectively.

- When A is a static reference, and let A center be the origin of coordinates. When

the center line of the axis of the spring trajectory of B is x axis, there exists a function $y=f_1(x)$ for the trajectory of object B. This function satisfies the following properties.

Property 1: If the movement of B satisfies strict stability conditions, then the trajectory function $y=f_1(x)$ of B has only prime solution in the least common multiple of the movement period TB and the movement period

TA of A.
Proof of property 1 :(proof by contradiction) let TA be the time period of A, and x represents the time variable of movement of B. It is only need to prove that solution x_0 of the motion equation $y=f_1(x)$ of B for the time of TA = 1 is exactly equal to the prime number of TA .
Let us assume that the solution x_0 of $y=f_1(x)$ is not prime. So x_0 is equal to some number.
And by symmetry, the increment of all the vertical functions of the X-axis in time TA times TB can be equal to zero. (increments may not be monotonous)
But there's no guarantee that the change in x in all the vertical directions is going to be equal to 0 everywhere. There is no guarantee that the change in energy satisfies monotonicity.
This result is inconsistent with the strict stability condition.
So the proposition is proven.
Corollary to property 1: strict stability is a necessary condition for Riemann functions to have prime solutions.

● When B is a static reference, and let B center be the origin of coordinates. The
center of the axis of the trajectory of A moving spring. When the line is the X-axis, the track of object A has A function $y=f_2(x)$. This function also satisfies property 1 above.

Property 2: the track function $y=f_1(x)$ function of B is the prime number solution x_0 , and there is x_0TA=TB. Similarly, the prime solution x1 to the track function $y=f_2(x)$ of A represents the existence of x1TB=TA.

IV. The motion balance system of two rotating objects is a combination of biperiodic motion

The motion balance system of two rotating objects can be viewed as the following composite motion.
One is the rotation of an object with period 1 at the origin of the X-axis and the motion of a spiral spring in the positive direction of the X-axis with period TB times the rotation of the object. Meet $y=f_1(x)$.
Secondly, the rotation of an object with period 1 at the origin of the X-axis and the motion of a spiral spring in the negative direction of the X-axis have period TA. Meet $y=f_2(x)$.
The two combined motions are differentiable at the origin of the coordinate.
The function $y=f_1(x)$ and $y=f_2(x)$ have the derivative at origin of coordinate system.
Theorem 3: (biperiodic theorem) : A strictly stable biperiodic (integer) motion is 2T,can be expressed as the sum of two prime Numbers.

V. Riemann conjecture and its conditions

One version of the Riemann conjecture is that any even number greater than 4 can be represented as the sum of two prime Numbers.

In studying Riemann conjecture, the proof of conjecture is of course important. But more important is the purpose of Riemann prime number distribution. The goal is to avoid interval symmetry. Interval symmetry is the destructive factor of energy stability. It is concluded that the research object of Riemann conjecture is the equilibrium stability of the motion system of two rotating stars.

The study of Riemann's conjecture is not accidental. More than 2,000 years ago, the Archimedes spiral was the beginning of the study of the motion systems of two rotating stars. The study of mobius circle further advances the study of the motion systems of two rotating stars.

●The idea of proving Riemann's conjecture

An equilibrium system of two rotating objects. We want it to be strictly stable. Can be decomposed into the combination of two virtual systems A and B.

A and B are at the origin of the X-axis, and they're going to spiral in the positive and negative directions of the X-axis.

Set the object C virtual at the origin of coordinates, and the relative rotation period of C is T. C and A, C and B respectively for the spring trajectory spiral motion. The trajectory is differentiable at the origin. C is in a relatively static state when observed outside two rotating object systems.
According to the properties of prime solution and strict stability conditions, there exists prime solution in the positive direction function $y=f_1(x)$ of x axis (x).
(CA movement)
Similarly, there is a prime solution to the negative X-axis function $y=f_2(x)$.
(CB motion) point C is the biperiodic stable equilibrium point.
Conclusion: for any even-numbered time with more than 4, there are two equations, $y=f_1(x)$ and $y=f_2(x)$ which satisfy the strict stability condition and have a prime solution. Respectively, that is, any even number greater than 4 can be decomposed into the sum of two prime numbers.

- **The conditions of the Riemann hypothesis**

The condition for Riemann's conjecture is strict stability. All vertical increments of the X-axis must satisfy monotonicity. Symmetry is not allowed. That's what it takes to have a prime solution

- **The actual model of Riemann conjecture**

The actual model of Riemann's conjecture is a strictly stable equilibrium system for the motion of two rotating objects.

VI. The reason why even Numbers are greater than 4 in Riemann conjecture

There are special cases of strict stable equilibrium systems for two rotating objects. That's the mobius belt.
In a strictly stable equilibrium system of two rotating objects A and B, the period of B can be 1 when the period of A is $\frac{1}{2}$. That is , there exists the following theorem.

Theorem 4: in a dual-rotation equilibrium system, if the period of object A is 1 and the period of object B is 2, the equilibrium system does not satisfy strict stability.
That's why 2+2=4 doesn't satisfy the Riemann conjecture. (because it has symmetry)

Corollaries of theorem 4:

①Archimedes and Riemann conjecture is the object of study of two rotating objects of strict stability and equilibrium system.
②The even number of Riemann suspects should be more than 4.
③All the non-trivial zeros of the Riemann function are on a straight line of $\frac{1}{2}$.
④The ordinary zero of the Riemann function is prime.
⑤two rotating objects strictly stable balance system, can be applied to the law of electronic movement.

VII. Conclusion

In this paper, the stability and strict stability equilibrium of two rotating object motion systems are discussed. The existence theorem of inertia is expounded. The relation between strict stability and Riemann conjecture is expounded. What is interesting is that the conclusions of this paper can be applied to the laws of motion of electron and other microscopic world.

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