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# Riemann's conjecture is the application of Zhe Yin's stability theorem

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***Abstract*—***In this paper, by stability theorem, the conditions and practical mathematical models of Riemann's conjecture are presented. The obvious conclusion is also given.*

***Key words---*** *Riemann's conjecture; gravitational wave; stability theorem*

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## I. Introduction

All things in the world are moving, and if the two sub-parts of the same wave source (matter) are synchronous, they can be called relative static relations. There is no absolute stationary matter (or wave source).[1,2,4]

The stability theorem proposed in this paper is the relative stability law of wave source (matter) movement. (with unconstrained natural repairable property).

Rotating electrons, objects, planets and stars are called wave sources. The revolution and rotation are relative. If the reference object is not determined in the universe, all matter (wave source) rotates. Including single electron motion. Wave source generates energy field. The universe is a relatively stable compound energy field. The energy field is the changing field (variable force field), and the intensity is different from the distance from the wave source. Wave source and energy field generate force, and force is the product of wave source.[1,6]

## II. Gravitational wave theory

**Gravitational waves existence theory** [1,2,3,4,5,6,7]: There are P, Q two points. P is the wave source of gravitational field, and Q is a point in the gravitational field. The existence of energy rotational motion (including proton, neutron, atomic nucleus or planet) at P is the necessary and sufficient condition of the existence of gravitational waves at Q. Direction is the bidirection of the path tangent at point Q, and the limit of the convergence direction is P point.

Prove: Let say the distance of P and Q is r, if P, Q are stationary points, it only exists the physical factor of istance r'', do not form elements of waves. Only the rotational movement can generate speed and energy. That is the speed of Q point $Vb$ and the angular velocity of P point $d\theta$ have a functional relationship.

$Vb = f(d\theta, r)$, when time $\Delta t \to 0$, angular velocity $\Delta\theta \to 0$, and

$$Vb = \frac{dr}{dt} = \lim_{\Delta\theta \to 0} \frac{[f(\theta + \Delta\theta), r] - [f(\theta), r]}{\Delta\theta},$$

We have a conclusion that P is the wave source of gravitation, and point Q exists the gravitational wave emitted from wave source P.

## III. Zhe Yin's Stability theorem

**If the increment of a function $\mathbf{f}(\mathbf{x})$ satisfies the linear equation, this function is stable.**

**Rectangular coordinate system representation:** $\mathbf{f}(\mathbf{x})$ is n+1 derivatives, $f_{n+1}(x)$ is the sum of the first n+1 terms of Taylor's polynomial, and $R_n(x)$ is the remainder term of Taylor's formula. If $R_n(x) = a + bx$ is satisfied, then $\mathbf{f}(\mathbf{x})$ is stable. Including generalized functions $\mathbf{f}(\mathbf{x})$.

**The polar coordinate system indicates:** the increment of the function $y = a + b\theta$ is linear, so this function is stable.

**Note**: Because it is a steady increment, the conclusion is established.

## IV. The condition of Riemann's conjecture is the track of the spring circle.

If the gravitational wave field is stable, the wave element satisfies the stability equation.
The spiral of
$y = a + b\theta$.

**The two wave sources (earth and sun)**:
Two relative rotation wave sources $N_1$ and $N_2$, relatively stable states (two rotation axes are not parallel), and the stability equations are:

$y_1 = a_1 + b_1\theta_1$, $y_2 = a_2 + b_2\theta_2$.

So the track is spring helix.

**The period of $N_1$ is larger than that of $N_2$ and all the periods of $N_2$ are stable (the system is always stable). The necessary and sufficient condition is that $N_2 = 1$ and $N_1$ is prime.**
**Monotonicity is the condition of Riemann's conjecture.**
This is the condition of Riemann's conjecture.
The Mobius belt is when $N_2$ equals 1/2.

## V. The spiral function $y = a + b\theta$ is the generating function of all functions.

The lateral observation of spatial circular motion is line segment. The arc can be expressed by the spiral equation with the endpoint as the origin of polar coordinates. The track of spatial sine function is a spring curve.Any nonlinear function can be expressed by a spiral function. Or a combination of several spiral functions.

## VI. Properties of spiral functions

Any spiral motion is a resultant motion of nonlinear motion and linear motion.
If Riemann's guess function is stable, then the increment of the nonlinear part is equal to zero. There is only linear part increment.

## VII. Confirmation of Riemann's conjecture

Suppose that the linear part of the spiral function is the reference object, and is set to the X axis.It is concluded that all solutions are in a straight line and are prime points. The real part of a nontrivial point is equal to 1/2, which is also obvious.

Of course, stability is conditional. It can be concluded that the purpose of Archimedes spiral research is the celestial motion. It is also applicable to the current electron motion. The characteristic is that the increment of nonlinear rotation is equal to zero. Satisfy the stability condition. That is linear increment. Linear increment is also a process of dimensionality reduction.

## VIII. Conclusion

This paper expounds the conclusion of Riemann's conjecture from the perspective of methodology. It is proposed that stability is the condition of Riemann's conjecture. It has reference value for related research.

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