**Riemann Paper(1859) Is False**

Chun-Xuan Jiang

Institute for Basic Research, Palm Harbor, FL34682-1577, USA

And: P. O. Box 3924, Beijing 100854, China

[jiangchunxuan@sohu.com](mailto:jiangchunxuan@sohu.com), [cxjiang@mail.bcf.net.cn](mailto:cxjiang@mail.bcf.net.cn), [jcxuan@sina.com](mailto:jcxuan@sina.com), [Jiangchunxuan@vip.sohu.com](mailto:Jiangchunxuan@vip.sohu.com)

**Abstract:** In 1859 Riemann defined the zeta function . From Gamma function he derived the zeta function with Gamma function .  and are the two different functions. It is false that  replaces . After him later mathematicians put forward Riemann hypothesis(RH) which is false. The Jiang function  can replace RH.

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In 1859 Riemann defined the Riemann zeta function (RZF)[1]

 , （1）

where ， and  are real, ranges over all primes. RZF is the function of the complex variable  in ，which is absolutely convergent.

In 1896 J. Hadamard and de la Vallee Poussin proved independently [2]

. （2）

In 1998 Jiang proved [3]

, （3）

where .

**Riemann paper (1859) is false [1]** We define Gamma function [1, 2]

. （4）

For . On setting , we observe that

. （5）

Hence, with some care on exchanging summation and integration, for ,



, （6）

where  is called Riemann zeta function with gamma function rather than ,

, （7）

is the Jacobi theta function. The functional equation for  is

 （8）

and is valid for .

Finally, using the functional equation of , we obtain

 （9）

From (9) we obtain the functional equation

. （10）

The function  satisfies the following

1.  has no zero for ;

2. The only pole of  is at ; it has residue 1 and is simple;

3.  has trivial zeros at  but  has no zeros;

4. The nontrivial zeros lie inside the region  and are symmetric about both the vertical line .

The strip  is called the critical strip and the vertical line  is called the critical line.

**Conjecture** (The Riemann Hypothesis). All nontrivial zeros of  lie on the critical line , which is false. [3]

 and  are the two different functions. It is false that  replaces , Pati proved that is not all complex zeros of  lie on the critical line:  [4].

Schadeck pointed out that the falsity of RH implies the falsity of RH for finite fields [5, 6]. RH is not directly related to prime theory. Using RH mathematicians prove many prime theorems which is false. In 1994 Jiang discovered Jiang function  which can replace RH, Riemann zeta function and L-function in view of its proved feature: if  then the prime equation has infinitely many prime solutions; and if , then the prime equation has finitely many prime solutions. By using  Jiang proves about 600 prime theorems including the Goldbach’s theorem, twin prime theorem and theorem on arithmetic progressions in primes[7,8].

In the same way we have a general formula involving 



, （11）

where  is arbitrary.

From (11) we obtain many zeta functions  which are not directly related to the number theory.

The prime distributions are order rather than random. The arithmetic progressions in primes are not directly related to ergodic theory ,harmonic analysis, discrete geometry, and combinatories. Using the ergodic theory Green and Tao prove that there exist infinitely many arithmetic progressions of length  consisting only of primes which is false [9, 10, 11]. Fermat’s last theorem (FLT) is not directly related to elliptic curves. In 1994 using elliptic curves Wiles proved FLT which is false [12]. There are Pythagorean theorem and FLT in the complex hyperbolic functions and complex trigonometric functions. In 1991 without using any number theory Jiang proved FLT which is Fermat’s marvelous proof[7, 13].

**Primes Represented by** [14]

（1）Let  and . We have

.

We have Jiang function

,

Where  if  (mod );  if  (mod );  otherwise.

Since , there exist infinitely many primes  and  such that  is a prime.

We have the best asymptotic formula



.

where  is called primorial, .

It is the simplest theorem which is called the Heath-Brown problem [15].

（2）Let  be an odd prime,  and .

we have



We have

,

where  if  if  (mod );

 if (mod);  otherwise.

Since , there exist infinitely many primes  and  such that  is a prime.

We have

 .

**The Polynomial**  **Captures Its Primes** [14]

（1）Let , We have

,

We have Jiang function

,

Where  if  (mod 4);  if （mod 8）;  otherwise.

Since , there exist infinitely many primes  and  such that  is a prime.

We have the best asymptotic formula



.

It is the simplest theorem which is called Friedlander-Iwaniec problem [16].

（2）Let , We have

,

where .

We have Jiang function

,

where  if  if ;if ;  otherwise.

Since , there exist infinitely many primes  and  such that  is a prime. It is a generalization of Euler proof for the existence of infinitely many primes.

We have the best asymptotic formula

.

（3）Let . We have

,

where  is an odd.

We have Jiang function

,

Where  if  if ;  otherwise.

We have the best asymptotic formula

.

（4）Let , We have

.

where  is an odd. Prime.

we have Jiang function

,

where  if  otherwise.

Since , there exist infinitely many primes  and  such that  is also a prime.

We have the best asymptotic formula

.

The Jiang function  is closely related to the prime distribution. Using  we are able to tackle almost all prime problems in the prime distributions.

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