The Symmetry of N-domain、 Prime Conjectures and Unified Theory

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Abstract In this paper, we discuss the symmetry of N-domain and we find that using the symmetry characters of Natural Numbers we can give proofs of the Prime Conjectures: Twins Prime Conjecture、Goldbach Conjecture and Reimann Hypothesis. and only give this domain the unit h (Plank constant), C (the velocity of light) and t (time) , when considering the intensity of field 1/aF as the curvature of the Quantum Time-Space with energy, then we get a Unified theory.

Keywords N domain Prime Conjectures

We have

$N \sim (0, 1, 2, 3, 4, \ldots\ldots\ldots)$ all the natural numbers

n~$(1, 2, 3, 4, \ldots\ldots\ldots)$ all the natural numbers excepted 0

$P \sim (2, 3, 5, 7, \ldots\ldots\ldots)$ all the prime numbers

p~$(3, 5, 7, \ldots\ldots\ldots)$ all the odd prime numbers

We notice that

$$N \sim (0, n)$$

$$\mathrm{P} \sim (2, p)$$

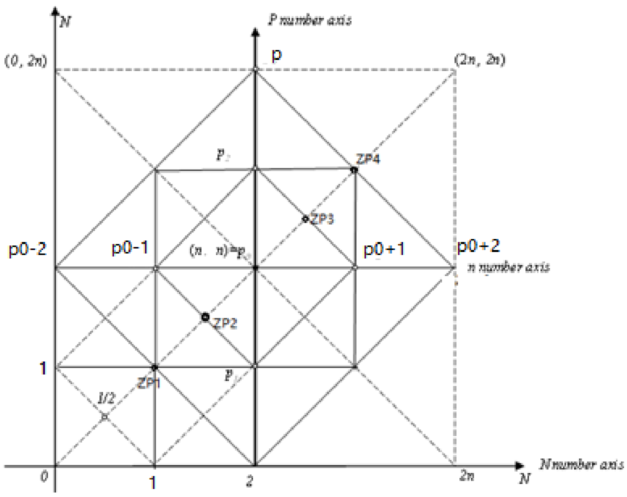

Fig.1. N domain as 2n×2n

We can define a N domain as 2n×2n with the center point of this square is

$$p0 = < n, n > \ and \ n \in p$$

show as on figure.1.
We have a square with the vertexes are

$$0、 < 0 , 2n >、 < 2n , 2n >、 2n$$

The area of this domain is $S_{2n}=2n \times 2n$

And we can constructure a N, n, P coordinate system:
The N number axis have 4 points :

$$0 , 1 , 2 , 2n$$

The n number axis have five points :

$$p0 - 2 , p0 - 1 , p0 , p0 + 1 , p0 + 2$$

And at the P number axis:
Prime number 2 is the point 2.
All the odd prime number can be indicated as:

$$p = n \ and \ n \in p$$

we can get a square with a center point $p0$ and the vertexes are

$$p0 - 2、p、p0 + 2、2$$

The area of this domain $S_{p0}=2 \times (2+2)$

we can also get a square with a center point $p0$ and the vertexes are

$$p0 - 1、p2、p0 + 1、p1 \qquad p1, p2 \in p$$

The area of this domain $S_0=2 \times 2$

And we have a projection vertical to S_0 , p0 is ***the point at infinity*** *and show as on figure 2.*

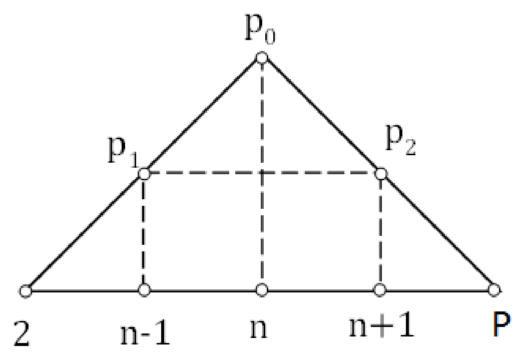

Fig2. P domain

We have

$$p0 \rightarrow n$$

$$p1 \rightarrow n-1$$
$$p2 \rightarrow n+1$$
$$p2 - p1 = < n+1 > - < n-1 > = 2$$
Because we have infinite prime numbers. This mean that we have infinite twin primes in N domain. **This is the proof of Twin Primes Conjecture.**

$$p2 + p1 = n+1+n-1 = 2n$$
And $n-1 \geq 2 \quad n \geq 3$ So $2n \geq 6$
This mean that every even number bigger than six can be divided into two odd prime numbers in N domain. **This is the proof of Goldbach conjecture.**

We notice the squares with the vertexes

$$O、 p0-2、 p0、 2$$

And

$$p0、 p、 < 2n, 2n > 、 p0+2$$

And we can get points 1/2, ZP1, ZP2, ZP3, and ZP4 show as on figure.1.:

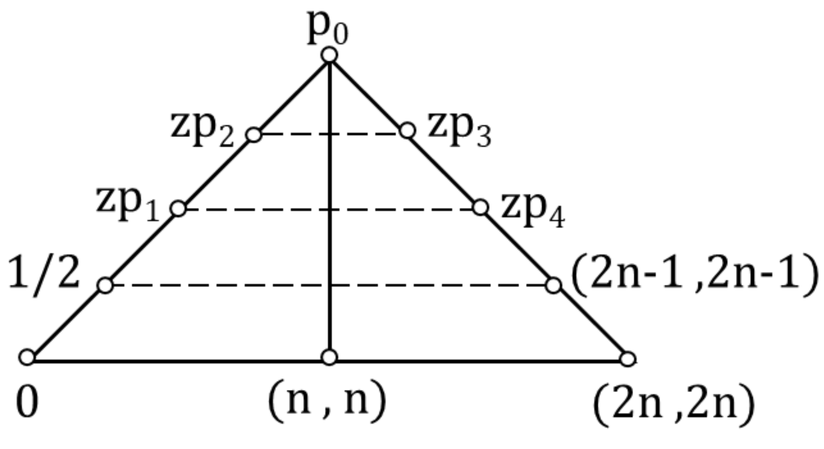

Fig.3. The symmetry of zero-points of on the **N-P domain**

And we have a projection vertical to S_{2n} *,* p0 *is* ***the point at infinity*** *show as on figure 2.*

We find $ZP1、 ZP2、ZP3、ZP4$ *have a symm*etry *with* $p0-(n,n)$. Just as show on Fig.2

$$Zp1 = \frac{1}{2} + \frac{1}{3}\left(p0 - \frac{1}{2}\right)$$
$$Zp2 = \frac{1}{2} + \frac{2}{3}\left(p0 - \frac{1}{2}\right)$$

$$Zp3 = 2p0 - \left[\frac{1}{2} + \frac{2}{3}\left(p0 - \frac{1}{2}\right)\right] = \frac{1}{2} + \frac{4}{3}\left(p0 - \frac{1}{2}\right)$$

$$Zp4 = 2p0 - \left[\frac{1}{2} + \frac{1}{3}\left(p0 - \frac{1}{2}\right)\right] = \frac{1}{2} + \frac{5}{3}\left(p0 - \frac{1}{2}\right)$$

Because

$$\mathbf{1/2 = (1/2 + 1/2 \bullet \boldsymbol{i})(1/2 - 1/2 \bullet \boldsymbol{i})}$$

We can get circles with $1/2$ and the intersections with the axis are:

$$Zp1, Zp2, Zp3, Zp4$$

All of them on the symmetry of 1/2 points.

We can get circles with $p0$ and the intersections with the axis are:

$$1, Zp1, p0, zp3, 2$$

We can get circles with $\boldsymbol{p0} \in \boldsymbol{p}$ and the intersections with the axis are

$$p0 + 1/2、Zp2、p0、Zp4、p0 - 1/2$$

Just show as the figure.3.

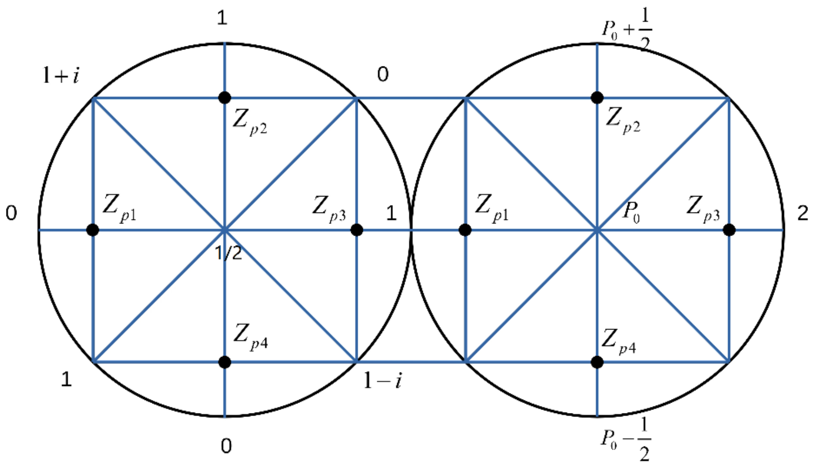

Figure.4. Zero points with a symmetry of 1/2 point

Riemann Zeta-Function is

$$\xi\ (s) = \sum_{n=1} \frac{1}{n^s} = \prod \frac{1}{1 - p^s} \qquad (s = a + bi)$$

Riemann Hypothesis: all the Non-trivial zero-point of Zeta-Function $Re(s) = {}^1/_2$.

In fact, we have

$$\mathbf{1 + \begin{bmatrix} 1+i & 1 & 0 \\ 0 & \frac{1}{2} & 1 \\ 1 & 0 & 1-i \end{bmatrix} \begin{bmatrix} {}^1/_2 & 1 - \frac{1}{2\pi i} \cdots\cdots n - \frac{1}{2\pi n i} \\ 1 + \frac{1}{2\pi i} & {}^1/_2 \qquad \cdots\cdots\cdots\cdots \\ \cdots\cdots\cdots\cdots\ {}^1/_2\ \cdots\cdots\cdots\cdots \\ n + \frac{1}{2\pi n i} & \cdots\cdots\cdots\cdots\cdots\ {}^1/_2 \end{bmatrix} = 0}$$

The tr(A)=1/2*N

We think this is the Proof of Riemann Hypothesis.

In fact, we have

$$1 + \frac{e^{ip\pi} - e^{i2n\pi}}{\sum \frac{1}{2^N} = 2} = 0$$

$N \sim (0, 1, 2, 3, 4, \ldots\ldots\ldots)$ all the natural numbers.

p$\sim (3, 5, 7, \ldots\ldots\ldots)$ all the odd prime numbers.

this equation gives a structure of all N and P and a 1/2 fixed point.

1/2, $Zp1, Zp2$ quartier line p0-0 and

$$p0 - Zp2 = Zp3 - p0$$
$$p0 - Zp1 = Zp4 - p0$$

we can constructure a Time-Space with energy coordinate system just give:

horizontal ordinate t $-< \frac{c}{a_F} >$is the time (s)

longitudinal coordinates $< hc >$, h is plank constant (J.s) c is the velocity of light (m/s)

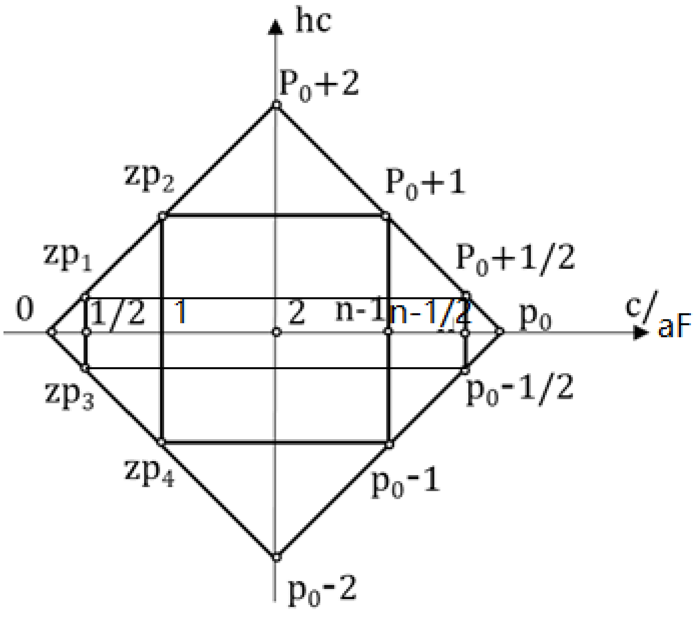

Fig.5. Time-Space with Energy

In Fig.2, And we notice that We have a square with the vertexes are

$$0、P0 + 2、P0、P0 - 2$$

The area of this domain is S_{2n}=2n×2n *, this we can define this as* ***graviton field.***

The rectangle with a center point 2 and the vertexes are

$$ZP1、ZP3、P0 - 1/2、P0 + 1/2$$

The area of this domain S_{EM} *we can define this as* ***electromagnetic field***

The square with a center point 2 and the vertexes are

$$Zp2、Zp4、p0-1、p0+1$$

The area of this domain *we can define this as* ***strong interaction field***

The **line** with a center point 2 and the vertexes are

$$p0+1、p0-1$$

we can define this as ***weak-interaction***

and

$$S_0 \sim hC$$
$$\frac{1}{a_F} \sim \frac{h}{C}$$

$1/a_F$ can be considered as the curvature of the Space-Time with Energy $S_{2n}=2n\times 2n$. **We should call it gravitation.**