The New Prime theorem（34）

$$P, jP^2+k-j(j=1,\cdots,k-1)$$

Chun-Xuan Jiang

P. O. Box 3924, Beijing 100854, P. R. China
jiangchunxuan@vip.sohu.com

Abstract: Using Jiang function we prove that if $J_2(\omega)\neq 0$ then there are infinitely many primes P such that each of jP^2+k-j is a prime, if $J_2(\omega)=0$ then there are finitely many primes P such that each of jP^2+k-j is a prime.

[Chun-Xuan Jiang**. The New Prime theorem（34）** $P, jP^2+k-j(j=1,\cdots,k-1)$**.** *Academ Arena* 2015;7(1s): 61-63]. (ISSN 1553-992X). http://www.sciencepub.net/academia. 34

Keywords: prime; theorem; function; number; new

Theorem . Let k be a given prime.

$$P, jP^2+k-j(j=1,\cdots,k-1) \tag{1}$$

Proof we have Jiang function [1,2]

$$J_2(\omega)=\prod_P[P-1-\chi(P)], \tag{2}$$

where $\chi(P)$ is the number of solutions of congruence

$$\prod_{j=1}^{k-1}\left(jq^2+k-j\right)\equiv 0 \,(\bmod P),\ q=1,\cdots,P-1. \tag{3}$$

From (2) and (3) we have that if $J_2(\omega)\neq 0$ then there are infinitely many primes P such that each of jP^2+k-j is a prime. If $J_2(\omega)=0$ then it has only finitely many prime solutions. If $J_2(\omega)\neq 0$ we have asymptotic formula [1,2]

$$\pi_k(N,2)=\left|\left\{P\le N: jP^2+k-j=prime\right\}\right|\sim\frac{J_2(\omega)\omega^{k-1}}{(2)^{k-1}\times\phi^k(\omega)}\frac{N}{\log^k N} \tag{4}$$

Exapmle 1. Let $k=3$. From (1) we have.

$$P, P^2+2,\ 2P^2+1 \tag{5}$$

From (3) we have $\chi(3)=2$. From (2) we have

$$J_2(\omega)=0 \tag{6}$$

We prove that (5) have only a solutions $P=3$, $P^2+2=11$, $2P^2+1=19$.

Example 2. Let $k=5$. From (1) we have

$$P, jP^2+5-j(j=1,2,3,4) \tag{7}$$

P=7,j=1,53;j=2,101;j=3,149;j=4,197.

From (2) and (3) we have

$$J_2(\omega)=4\prod_{7\le P}[P-5-2(\frac{-1}{P})-2(\frac{-6}{P})]\neq 0 \tag{8}$$

We prove that there are infinitely many primes P such that each of jP^2+5-j is a prime.

From (4) we have

$$\pi_5(N,2)=\left|\left\{P\le N: jP^2+5-j=prime\right\}\right|\sim\frac{J_2(\omega)\omega^4}{16\phi^5(\omega)}\frac{N}{\log^5 N} \tag{9}$$

Example 3. Let $k=7$. From (1) we have

$$P, jP^2+7-j (j=1,2,3,4,5,6) \tag{10}$$

From (2) and (3) we have

$$J_2(\omega)=16\prod_{11\le P}[P-7-2(\frac{-3}{P})-2(\frac{-6}{P})-2(\frac{-10}{P})]\ne 0 \tag{11}$$

We prove that there are infinitely many primes P such that each of jP^2+7-j is a prime.
From (4) we have

$$\pi_7(N,2)=\left|\left\{P\le N: jP^2+7-j=prime\right\}\right|\sim\frac{J_2(\omega)\omega^6}{64\phi^7(\omega)}\frac{N}{\log^7 N} \tag{12}$$

Remark. The prime number theory is basically to count the Jiang function $J_{n+1}(\omega)$ and Jiang prime k-tuple singular series $\sigma(J)=\frac{J_2(\omega)\omega^{k-1}}{\phi^k(\omega)}=\prod_P\left(1-\frac{1+\chi(P)}{P}\right)(1-\frac{1}{P})^{-k}$ [1,2], which can count the number of prime number. The prime distribution is not random. But Hardy prime k-tuple singular series $\sigma(H)=\prod_P\left(1-\frac{\nu(P)}{P}\right)(1-\frac{1}{P})^{-k}$ is false [3-8], which cannot count the number of prime numbers.

Szemerdi's theorem does not directly to the primes, because it cannot count the number of primes. It is unusable. Cramr's random model can not prove prime problems. It is incorrect. The probability of $1/\log N$ of being prime is false. Assuming that the events "P is prime", "$P+2$ is prime" and "$P+4$ is prime" are independent, we conclude that P, $P+2$, $P+4$ are simultaneously prime with probability about $1/\log^3 N$. There are about $N/\log^3 N$ primes less than N. Letting $N\to\infty$ we obtain the prime conjecture, which is false. The tool of additive prime number theory is basically the Hardy-Littlewood prime tuple conjecture, but can not prove and count any prime problems[6].

Mathematicians have tried in vain to discover some order in the sequence of prime numbers but we have every reason to believe that there are some mysteries which the human mind will never penetrate.

Leonhard Euler(1707-1783)

It will be another million years, at least, before we understand the primes.

Paul Erdos(1913-1996)

Hi Mr. Jiang,

I looked at your work. Your work seems is divided into two different groups in term of opinions.

I'm a mathematican and would like to discuss your work with you and hope you are interested. I personally met with Erdos several times and is wondering why your work was not noticed by him before he died?

Looking forward to hearing from you.

Thank you!

Bill Yue, Ph. D. SASPM

Author address in USA:
Chun-Xuan Jiang

Institute for Basic Research Palm Harbor, FL 34682, U.S.A.
Jiangchunxuan@vip.sohu.com

References

1. Chun-Xuan Jiang, Foundations of Santilli's isonumber theory with applications to new cryptograms, Fermat's theorem and Goldbach's conjecture. Inter. Acad. Press, 2002, MR2004c:11001, (http://www.i-b-r.org/docs/jiang.pdf) (http://www.wbabin.net/math/xuan13.pdf)(http://vixra.org/numth/).
2. Chun-Xuan Jiang, Jiang's function $J_{n+1}(\omega)$ in prime distribution.(http://www. wbabin.net/math /xuan2. pdf.) (http://wbabin.net/xuan.htm#chun-xuan.)(http://vixra.org/numth/).
3. Chun-Xuan Jiang, The Hardy-Littlewood prime k-tuple conjectnre is false. (http://wbabin.net/xuan.htm# chun-xuan)(http://vixra.org/numth/).
4. G. H. Hardy and J. E. Littlewood, Some problems of "Partitio Numerorum", III: On the expression of a number as a sum of primes. Acta Math., 44(1923)1-70.
5. W. Narkiewicz, The development of prime number theory. From Euclid to Hardy and Littlewood. Springer-Verlag, New York, NY. 2000, 333-353. 这是当代素数理论水平.
6. B. Green and T. Tao, Linear equations in primes. To appear, Ann. Math.
7. D. Goldston, J. Pintz and C. Y. Yildirim, Primes in tuples I. Ann. Math., 170(2009) 819-862.
8. T. Tao. Recent progress in additive prime number theory, preprint. 2009. http://terrytao.files.wordpress. com/2009/08/prime-number-theory 1.pdf.
9. Vinoo Cameron. Prime Number 19, The Vedic Zero And The Fall Of Western Mathematics By Theorem. *Nat Sci* 2013;11(2):51-52. (ISSN: 1545-0740). http://www.sciencepub.net/nature/ns1102/009_15631ns1102_51_52.pdf.
10. Vinoo Cameron, Theo Den otter. PRIME NUMBER COORDINATES AND CALCULUS. *Rep Opinion* 2012;4(10):16-17. (ISSN: 1553-9873). http://www.sciencepub.net/report/report0410/004_10859report0410_16_17.pdf.
11. Vinoo Cameron, Theo Den otter. PRIME NUMBER COORDINATES AND CALCULUS. *J Am Sci* 2012;8(10):9-10. (ISSN: 1545-1003). http://www.jofamericanscience.org/journals/am-sci/am0810/002_10859bam0810_9_10.pdf.
12. Chun-Xuan Jiang. Automorphic Functions And Fermat's Last Theorem (1). *Rep Opinion* 2012;4(8):1-6. (ISSN: 1553-9873). http://www.sciencepub.net/report/report0408/001_10009report0408_1_6.pdf.
13. Chun-Xuan Jiang. Jiang's function $J_{n+1}(\omega)$ in prime distribution. *Rep Opinion* 2012;4(8):28-34. (ISSN: 1553-9873). http://www.sciencepub.net/report/report0408/007_10015report0408_28_34.pdf.
14. Chun-Xuan Jiang. The Hardy-Littlewood prime *k*-tuple conjecture is false. *Rep Opinion* 2012;4(8):35-38. (ISSN: 1553-9873). http://www.sciencepub.net/report/report0408/008_10016report0408_35_38.pdf.
15. Chun-Xuan Jiang. A New Universe Model. *Academ Arena* 2012;4(7):12-13 (ISSN 1553-992X). http://sciencepub.net/academia/aa0407/003_10067aa0407_12_13.pdf.

5/1/2015