由素数的次幂和引出的黎曼猜想的解和哥德巴赫猜想

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摘要：通过将多个素数的幂和与自然数的幂和联系起来，得到了自然数中的偶数与多个素数的幂和之间的关系。

关键词：欧拉乘积公式，黎曼猜想，哥德巴赫猜想。

如果我没有计算不同素数幂的乘积之和，恐怕我永远不会和欧拉有任何关系，因为知道魔术是如何工作的，这就很简单了。

$\forall m$，n，k， d，$n_k \in \mathbf{N}$， $\forall p$，p_k， $\in$ 素数， $\forall p^n = \frac{p^n-1}{1-p^{-n}}$ ， $\forall \prod_{k=0}^{\infty} {p_k}^n = \prod_{k=0}^{\infty} \frac{{p_k}^n-1}{1-{p_k}^{-n}}$，

$\forall p^n$ 的约数，例如， p^0，p^1，p^2，p^3，p^4， ……p^n，$\forall p^n$ 的约数和， $S_n = \sum_{m=0}^{n} p^m = \frac{p^n-p^0}{p^1-1}$，

$\forall p^n$ 的约数的倒数， 例如 ， p^0，p^{-1}，p^{-2}，p^{-3}，p^{-4}， ……p^{-n}，

$\forall p^n$的约数的倒数和 ， $S_{-n} = \sum_{m=0}^{n} p^{-m} = \frac{p^{-n-1}-p^0}{p^{-1}-1} = \frac{p^{n+1}-p^0}{p^n(p^1-1)}$ ，

$\Rightarrow \forall p^n = \frac{S_n}{S_{-n}} = \frac{\sum_{m=0}^{n} p^m}{\sum_{m=0}^{n} p^{-m}} = \frac{p^n-p^0}{p^1-1} / \frac{p^{-n-1}-p^0}{p^{-1}-1}$， $\Rightarrow \prod_{k=0}^{\infty} {p_k}^n = \prod_{k=0}^{\infty} \frac{\sum_{m=0}^{n} {p_k}^m}{\sum_{m=0}^{n} {p_k}^{-m}} = \prod_{k=0}^{\infty} (\frac{{p_k}^n-{p_k}^0}{{p_k}^1-1} / \frac{{p_k}^{-n-1}-{p_k}^0}{{p_k}^{-1}-1})$，

$n \to \infty$， $\Rightarrow \prod_{k=0}^{\infty} {p_k}^n = \prod_{k=0}^{\infty} (\frac{{p_k}^n-{p_k}^0}{{p_k}^1-1} / \frac{{p_k}^{-n-1}-{p_k}^0}{{p_k}^{-1}-1}) = \frac{\sum_{d=1}^{\infty} d^{+1}}{\sum_{d=1}^{\infty} d^{-1}}$， $\Rightarrow \sum_{d=1}^{\infty} d^{\pm 1} = \prod_{k=0}^{\infty} \frac{{p_k}^{\pm(n+1)}-{p_k}^0}{{p_k}^{\pm 1}-1}$，

$n \to \infty$， $n_k \to \infty$， $\Rightarrow \prod_{k=0}^{\infty} {p_k}^{s*n_k} = \frac{\sum_{d=1}^{\infty} d^{+s}}{\sum_{d=1}^{\infty} d^{-s}}$， $\Rightarrow \sum_{d=1}^{\infty} d^{\pm s} = \prod_{k=0}^{\infty} \frac{{p_k}^{\pm s(n_k+1)}-{p_k}^0}{{p_k}^{\pm s}-1}$。

因此，欧拉乘积公式是不准确的，

即， $\sum_{d=1}^{\infty} d^{-s} \neq \prod_{k=0}^{\infty} \frac{1}{1-{p_k}^{-s}}$， $\Rightarrow \sum_{d=1}^{\infty} d^{-s} = \prod_{k=0}^{\infty} \frac{{p_k}^{-s(n_k+1)}-{p_k}^0}{{p_k}^{-s}-1} = (\sum_{d=1}^{\infty} d^{+s}) \prod_{k=0}^{\infty} \frac{1-{p_k}^{-s*n_k}}{{p_k}^{s*n_k}-1}$。

如果 $\sum_{d=1}^{\infty} d^{-s} = 0$， $\Rightarrow s = -\frac{\log_{p_k} 1}{n_k+1}$， $s = -\frac{\log_{p_k} 1}{n_k}$，

所以，黎曼的猜想是错误的。

$\forall x_{c_n}$， x_{g_n}， $x_{f_n} \in \mathbf{N}$， $\forall p_a$， p_b， p_{c_n}， p_{g_n}， $p_{f_n} \in$ 素数，

$\forall p_{g_m}$， $p_{f_n} < p_a$，$\forall p_{f_m}$,， $p_{f_n} < p_b$，$\forall p_a = \prod_{n=0}^{m} {p_{g_n}}^{x_{g_n}} + 1$， $\forall p_b = \prod_{n=0}^{m} {p_{f_n}}^{x_{f_n}} + 1$， $m \to \infty$，

$\Rightarrow p_a + p_b = \prod_{n=0}^{m} {p_{g_n}}^{x_{g_n}} + \prod_{n=0}^{m} {p_{f_n}}^{x_{f_n}} + 2 = 2\prod_{n=0}^{m} {p_{c_n}}^{x_{c_n}} + 2$， $2 + 2 = 4$，

因此，任意两个素数的和可以写成大于 2 的偶数，

哥德巴赫的猜想是正确的。

参考文献：无。

The solution of Riemann conjecture and Goldbach conjecture derived from the sum of prime numbers

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Abstract: By connecting the sum of powers of multiple prime numbers with the power sum of natural numbers, the relationship between even numbers in natural numbers and the sum of powers of multiple prime numbers is obtained.

Key words: Euler product formula, Riemann conjecture, Goldbach conjecture.

If I hadn't calculated the sum of the products of different prime powers, I'm afraid I would never have anything to do with Euler, because knowing how magic works, it would be very simple.

$\forall m, n, k, d, n_k \in \mathbf{N}$, $\forall p$, p_k , $\in$ prime numbers , $\forall p^n = \frac{p^n - 1}{1 - p^{-n}}$, $\forall \prod_{k=0}^{\infty} {p_k}^n = \prod_{k=0}^{\infty} \frac{{p_k}^n - 1}{1 - {p_k}^{-n}}$,

Divisor of $\forall p^n$, Such as, $p^0, p^1, p^2, p^3, p^4, \dots\dots p^n$, Sum of divisors of $\forall p^n$, $S_n = \sum_{m=0}^{n} p^m = \frac{p^n - p^0}{p^1 - 1}$,

The reciprocal of the divisor of $\forall p^n$, Such as , $p^0, p^{-1}, p^{-2}, p^{-3}, p^{-4}, \dots\dots p^{-n}$,

The reciprocal sum of the divisor of $\forall p^n$, $S_{-n} = \sum_{m=0}^{n} p^{-m} = \frac{p^{-n-1} - p^0}{p^{-1} - 1} = \frac{p^{n+1} - p^0}{p^n (p^1 - 1)}$,

$\Rightarrow \forall p^n = \frac{S_n}{S_{-n}} = \frac{\sum_{m=0}^{n} p^m}{\sum_{m=0}^{n} p^{-m}} = \frac{p^n - p^0}{p^1 - 1} / \frac{p^{-n-1} - p^0}{p^{-1} - 1}$, $\prod_{k=0}^{\infty} {p_k}^n = \prod_{k=0}^{\infty} \frac{\sum_{m=0}^{n} {p_k}^m}{\sum_{m=0}^{n} {p_k}^{-m}} = \prod_{k=0}^{\infty} \left(\frac{{p_k}^n - {p_k}^0}{{p_k}^1 - 1} / \frac{{p_k}^{-n-1} - {p_k}^0}{{p_k}^{-1} - 1}\right)$,

$n \to \infty$, $\Rightarrow \prod_{k=0}^{\infty} {p_k}^n = \prod_{k=0}^{\infty} \left(\frac{{p_k}^n - {p_k}^0}{{p_k}^1 - 1} / \frac{{p_k}^{-n-1} - {p_k}^0}{{p_k}^{-1} - 1}\right) = \frac{\sum_{d=1}^{\infty} d^{+1}}{\sum_{d=1}^{\infty} d^{-1}}$, $\sum_{d=1}^{\infty} d^{\pm 1} = \prod_{k=0}^{\infty} \frac{{p_k}^{\pm(n+1)} - {p_k}^0}{{p_k}^{\pm 1} - 1}$,

$n \to \infty$, $n_k \to \infty$, $\Rightarrow \prod_{k=0}^{\infty} {p_k}^{s * n_k} = \frac{\sum_{d=1}^{\infty} d^{+s}}{\sum_{d=1}^{\infty} d^{-s}}$, $\sum_{d=1}^{\infty} d^{\pm s} = \prod_{k=0}^{\infty} \frac{{p_k}^{\pm s(n_k+1)} - {p_k}^0}{{p_k}^{\pm s} - 1}$.

So, the Euler product formula is not accurate, that is, $\sum_{d=1}^{\infty} d^{-s} \neq \prod_{k=0}^{\infty} \frac{1}{1 - {p_k}^{-s}}$.

$\Rightarrow \sum_{d=1}^{\infty} d^{-s} = \prod_{k=0}^{\infty} \frac{{p_k}^{-s(n_k+1)} - {p_k}^0}{{p_k}^{-s} - 1} = \left(\sum_{d=1}^{\infty} d^{+s}\right) \prod_{k=0}^{\infty} \frac{1 - {p_k}^{-s * n_k}}{{p_k}^{s * n_k} - 1}$, If $\sum_{d=1}^{\infty} d^{-s} = 0$,

$\Rightarrow s = -\frac{\log_{p_k} 1}{n_k + 1}$, $s = -\frac{\log_{p_k} 1}{n_k}$, So, Riemann's conjecture is wrong.

$\forall x_{c_n}$, x_{g_n}, $x_{f_n} \in \mathbf{N}$, $\forall p_a$, p_b , p_{c_n} , p_{g_n} , $p_{f_n} \in$ prime numbers , $\forall p_{g_m}$, $p_{f_n} < p_a$, $\forall p_{f_m}$, $p_{f_n} < p_b$,

$\forall p_a = \prod_{n=0}^{m} {p_{g_n}}^{x_{g_n}} + 1$, $\forall p_b = \prod_{n=0}^{m} {p_{f_n}}^{x_{f_n}} + 1$, $m \to \infty$,

$\Rightarrow p_a + p_b = \prod_{n=0}^{m} {p_{g_n}}^{x_{g_n}} + \prod_{n=0}^{m} {p_{f_n}}^{x_{f_n}} + 2 = 2 \prod_{n=0}^{m} {p_{c_n}}^{x_{c_n}} + 2$, $2 + 2 = 4$,

So, the sum of any two primes can be written as an even number greater than 2, Goldbach's conjecture is correct.

Reference: none.