PROOF OF STRONG GOLBACH CONJECTURE

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Abstract. Proof of Strong Golbach Conjecture.
MSC Class:

Goldbach's conjecture is one of the oldest and best-known unsolved problems in number theory and all of mathematics. It states that every even natural number greater than 2 is the sum of two prime numbers. The conjecture has been shown to hold for all integers less than $\kappa = 4.10 \cdot 10^{18}$ [1] but remains unproven despite considerable effort.

To cite [2], the Goldbach's conjecture is that every even $N > 4$ can be written as a sum of two prime numbers. Linnik proved that there exists a finite K such that, for all sufficiently large even N, one may write

$$N = p + q + 2^{\nu_1} + 2^{\nu_2} + \ldots + 2^{\nu_r}\,, \tag{1}$$

where p and q are primes, the ν_i are positive integers, and where $r \leq K$.

To cite [3], $N \geq N_0(K)$.

1. My idea

I have not seen the explicit expression of $N_0(K)$ in the paper [3], but by selecting $\nu_1 = \nu_2 = \nu_3 = \nu_4 = \nu_5 = \nu_6 = \nu_7 = \nu_8 = 1$, the condition $\kappa > N_0(K = 8)$ can be arranged bacause N_0 is presented in Ref. [3] as the K function only.

Then any even number $N \geq 12$ is $N = p + q + 8$, where p, q are primes. This means that any even number $M \geq 4$ is $M = P + Q$, where P, Q are primes.

References

[1] https://sweet.ua.pt/tos/goldbach.html
[2] Dave Platt, Tim Trudgian, Linnik's approximation to Goldbach's conjecture, and other problems, J. Number Theory 153, 54–62 (2015).

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[3] Pintz, J., Ruzsa, I.Z. On Linnik's approximation to Goldbach's problem. II. Acta Math. Hungar. 161, 569–582 (2020). https://doi.org/10.1007/s10474-020-01077-8