Review of: "The smallest gap between primes"

Yonghong Liu

1 Wuhan University of Technology

Potential competing interests: No potential competing interests to declare.

The title of the paper explicitly says its purpose: “The smallest gap between primes.” My understanding is that it has no value in number theory. Page 1, line 8 in “Abstract”, “Two is the smallest possible gap between primes”, this concept is wrong. Let me use an example in prime gap to illustrate my point here: A prime gap is the difference between two successive prime numbers. The n-th prime gap, denoted gn or g(pn) is the difference between the (n+1)-th and the n-th prime numbers, i.e.

$$g_n = p_{n+1} - p_n.$$ 

We have $g_1 = 1$, $g_2 = g_3 = 2$, and $g_4 = 4$. The twin prime conjecture posits that $g_n = 2$ for infinitely many integers $n$. In my opinion, page 6, “Proof of theorem 1” provide suppose is too easy to get counterexamples. That means the proof is worthless, which is a major drawback of the paper. Unfortunately the present paper does not address this twin prime conjecture, and as such the paper should not be published.