Fields Medal Lecture Series

March 10, 2023

Difference between consecutive primes

Ramachandran Balasubramanian

In 2013, James Maynard announced the following spectacular theorem:

Theorem: For any fixed $k \geq 2$, there exist k integers $(h_1, \ldots, h_k)$ such that for infinitely many n, one has all the integers $n + h_1, \ldots, n + h_k$ are primes. In particular, there exists an integer $h \leq 600$ with the property that there exist infinitely many pairs of prime numbers of the form $(p, p + h)$.

In this lecture we try to explain the new ideas which Maynard uses as compared to Goldston-Pintz-Yildirim and Zhang.