

Consecutive composite values of polynomials

Kevin Ford

The University of Illinois at Urbana-Champaign

We show that for any integer valued irreducible polynomial f with positive leading coefficient, among the values $f(1), \dots, f(N)$ there is a string of at least $(\log N)(\log \log N)^c$ consecutive integers n with $f(n)$ composite. The constant $c = 1/835$. Previously, this was known with the constant c being dependent on f and decreasing exponentially in the degree of f (Ford, Konyagin, Maynard, Pomerance, Tao 2023). This is joint work with Mikhail Gabdullin.

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