
STANLEY YAO XIAO, UNBC

Primes of the form $f(p, q)$, f quadratic, and applications

We capitalize on the breakthrough result of Green and Sawhney proving the infinitude of primes of the form $p^2 + nq^2$, where $n \equiv 0, 4 \pmod{6}$ is a fixed positive integer and p, q are prime variables to arbitrary binary quadratic forms satisfying the obvious non-degeneracy conditions. Notably, our result covers irreducible indefinite binary quadratic forms. This has applications to counting elliptic curves admitting a rational isogeny of prime degree, ordered by conductor.