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Paul Pollack* (paul.pollack@dartmouth.edu), 6188 Kemeny Hall – Mathematics Dept,
Dartmouth College, Hanover, NH 03755. *Simultaneous Prime Values of Polynomials in Positive Characteristic.*

One expects that there are infinitely many pairs of primes $p, p + 2$; this is the celebrated twin prime conjecture. More generally, one expects that any finite collection of polynomials irreducible over \mathbf{Z} satisfying certain necessary congruence conditions simultaneously represents prime values infinitely often. In this talk we discuss recent qualitative and quantitative results in this direction when the ring \mathbf{Z} of integers is replaced by the ring of polynomials over a finite field. For example, we prove that there are infinitely many irreducible polynomials of the form $f^2 + 1$ over every finite field \mathbf{F}_q for which $q \equiv 3 \pmod{4}$, and we answer a question of Hall concerning the degrees of twin prime polynomials $f, f + 1$. (Received September 25, 2006)