

1056-11-1082 **Paul Pollack*** (pppollac@illinois.edu). *Prime polynomials.*

While the study of the distribution of the prime numbers goes back over 2000 years, many unsolved problems remain. Two of the better-known examples are the twin prime conjecture on pairs $\{p, p+2\}$ and Goldbach's conjecture concerning representations of an even N as a sum of two primes. In this talk we discuss what is known about problems of this type if one replaces the ring of rational integers by the ring of one-variable polynomials over a finite field. There are some surprises; for example (as first noticed by Chris Hall), one can establish a polynomial version of the twin prime conjecture from first principles in just a few pages. Some of the results we present constitute joint work with Andreas Bender of the Korea Institute for Advanced Study. (Received September 20, 2009)