1023-11-591 **Lenny Jones*** (`lkjone@ship.edu`), Department of Mathematics, Shippensburg University, 1871 Old Main Drive, Shippensburg, PA 17257. *Polynomial Variations on a Theme of Sierpiński.* Preliminary report.

In 1960, using an idea of Erdős, Sierpiński proved that there exist infinitely many odd positive integers k such that $k \cdot 2^n + 1$ is composite for all positive integers n. On the other hand, it is easy to see that no single odd positive integer k exists such that $k \cdot 2^n + 1$ is prime for all positive integers n. Certain polynomial variants of these problems, using polynomials with integer coefficients and considering reducibility or irreducibility over the rationals, have been addressed by Filaseta, Ford, Konyagin and Schinzel. In this talk, we discuss some preliminary investigations into polynomial variations of these problems using polynomials over $\mathbb{F}_p$, the finite field with p elements, where p is a prime. More specifically, for a fixed monic polynomial $g(x)$ in $\mathbb{F}_p[x]$, we examine when there exist infinitely many monic polynomials $f(x)$ in $\mathbb{F}_p[x]$, chosen from a prescribed set and relatively prime to $g(x)$, such that $f(x)\,(g(x))^n + 1$ is reducible (or irreducible) in $\mathbb{F}_p[x]$ for all positive integers n. (Received September 18, 2006)