
LUCAS REIS, Universidade Federal de Minas Gerais

On the explicit factorization of $f(x^n)$ over finite fields.

Let $f(x) \in \mathbb{F}_q[x]$ be an irreducible polynomial of degree k and exponent e and n be a positive integer such that $\text{rad}(n)$ divides $q - 1$ and $\text{gcd}(ek, n) = 1$. In this talk we discuss the explicit factorization of the polynomial $f(x^n)$ over \mathbb{F}_q . In particular, we apply our main result to certain classes of cyclotomic polynomials.

This is a joint work with F.E. Brochero Martínez (Universidade Federal de Minas Gerais).