
ANTONIO CAFURE, UNGS, UBA, CONICET

Cyclotomic polynomials and linear algebra

Let n be an odd natural number and let p be an odd prime such that $p \nmid n$. In this talk, following the techniques of [1] and well known results about cyclotomic polynomials, we will show that the coefficients of the cyclotomic polynomial Φ_{np} can be computed as the unique solution of a linear system of equations $Tx = b$, where T is a semicirculant matrix involving coefficients of Φ_n , and b is a vector whose entries are certain coefficients of Φ_n determined according to some congruences modulo p .

[1]. A. CAFURE Y E. CESARATTO. Irreducibility criteria for reciprocal polynomials and applications. Am. Math. Month. 124, No 1, 37–53.