

# NUMBER THEORY SEMINAR

*Zeros and irreducibility of polynomials with  
gcd powers as coefficients*

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WHERE: Chase 319

ABSTRACT:

We study the family of self-inversive polynomials of degree  $n$ , whose  $j$ -th coefficient is  $\gcd(n, j)^k$ , for each fixed integer  $k > 0$ . We prove that these polynomials have all of their roots on the unit circle, with uniform angular distribution. In the process we prove some new results on Jordan's totient function. We also prove that these polynomials are irreducible, apart from an obvious linear factor, whenever  $n$  is a power of a prime, and conjecture that this holds for all  $n$ . (Joint work with Sinai Robins, Nanyang Technological University, Singapore).

Any questions, please e-mail: [rnoble@mathstat.dal.ca](mailto:rnoble@mathstat.dal.ca).