1100-33-59 **Karl Dilcher*** (`dilcher@mathstat.dal.ca`), Department of Mathematics and Statistics, Dalhousie University, Halifax, NS B3H4R2, Canada, and **Sinai Robins** (`rsinai@ntu.edu.sg`), Division of Mathematical Sciences, Nanyang Technological University, Singapore, 637371, Singapore. *Zeros and irreducibility of polynomials with gcd powers as coefficients.*

We study the family of self-inversive polynomials of degree n, whose jth coefficient is $\gcd(n,j)^k$, for each fixed integer $k \geq 1$. 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. (Received January 26, 2014)