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Nathan C. Jones* (ncjones@uic.edu), Dept. of Mathematics, Stat. and Comp. Sci., University of Illinois at Chicago, SEO 322, 851 S Morgan Street, Chicago, IL 60607-7045. *A local-global principle for power maps.*

Let f be a function from the set of integers into itself. We call f a global power map if there exists a non-negative integer k so that $f(x) = x^k$ for every integer x . We call f a local power map at the prime number p if f induces a well-defined group homomorphism on the multiplicative group of integers modulo p . It has been conjectured that, if f is a local power map at infinitely many primes p , then f is a global power map. In this talk, I will discuss a theorem implying that, if f is a local power map at all primes p in a set with positive upper density relative to the set of all primes, then f must be a global power map. (Received September 22, 2014)