1052-11-139 **Paul Pollack*** (pppollac@illinois.edu). *The distribution of sociable numbers.*

Let $s(n)$ denote the sum of the proper divisors of n, so that $s(n) = \sigma(n) - n$. Interest in the behavior of this arithmetic function can be traced back thousands of years to the early interest in perfect numbers. Let s_k denote the kth iterate of s. We call a number n *sociable* if $s_k(n) = n$ for some $k \geq 1$; the least such k is then referred to as the *order* of n. Thus the sociable numbers of order 1 are precisely the perfect numbers and those of order 2 are precisely the amicable numbers. In this talk we describe some recent results on the distribution of sociable numbers. This is joint work with M. Kobayashi and C. Pomerance, both from Dartmouth College. (Received August 25, 2009)