

1086-11-1982 **Daniel M Kane*** (dankane@math.stanford.edu). *The asymptotic number of partitions without k -sequences.*

The Rogers-Ramanujan identities relates the generating function for the number of partitions of n with no pair of parts of consecutive sizes and all sizes distinct, to the q -series of modular forms. Work of MacMahon provides a similar formula when the requirement of distinct sizes is dropped. When the condition that no pair of parts have consecutive sizes is relaxed to the constraint that there are no k parts of consecutive sizes for some $k > 2$, things become considerably more difficult. Although the corresponding q -series can be written in relatively compact form obtaining the asymptotics of the coefficients has proved to be difficult. We present a new way of looking at this generating function as the limiting value of a recurrence relation and show how this can be used to obtain these asymptotics, thus establishing a conjecture of George Andrews. (Received September 24, 2012)