1056-11-1235 **Byungchan Kim** and **Jeremy Rouse***, 1409 W. Green Street, Urbana, IL 61801. *Explicit bounds for the number of p-core partitions of n.*

Let p be a prime number. The generating function for the number of p-core partitions of n is

$$\sum_{n=0}^{\infty} pc_p(n)q^n = \prod_{n=1}^{\infty} \frac{(1-q^{pn})^p}{1-q^n}.$$

We use the theory of modular forms, and the circle method of Hardy and Ramanujan to derive explicit bounds on $pc_p(n)$. (Received September 21, 2009)