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Timothy P. Kilbourn* (tkilbour@math.uiuc.edu). *The distribution of powers of the partition function modulo ℓ^j .* Preliminary report.

In 2005, Ahlgren and Boylan finished the proof of Newman's Conjecture, stating that the partition function takes values in each residue class modulo ℓ^j infinitely often. We will prove an analogous result for powers of the partition function. The proof will use half-integral weight modular forms as well as techniques from the work of Serre and Swinnerton-Dyer on modular forms mod p . (Received February 21, 2006)