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Ameya A. Velingker* (avelingk@fas.harvard.edu), 8 Currier Mail Center, 64 Linnaean St.,
Cambridge, MA 02138. *On an Exact Formula for the Coefficients of Han's Generating Function.*

Given a positive integer t and a partition λ , define $\mathcal{H}_t(\lambda)$ to be the multiset of hook lengths of λ that are divisible by t . For each nonnegative integer n , we consider the quantity $a_t(n) = a_t^{\text{even}}(n) - a_t^{\text{odd}}(n)$, where $a_t^{\text{even}}(n)$ (resp. $a_t^{\text{odd}}(n)$) is the number of partitions λ of n for which $\mathcal{H}_t(\lambda)$ has an even (resp. odd) number of elements. We prove an exact formula for $a_t^{\text{even}}(n) - a_t^{\text{odd}}(n)$ using a generating function for $a_t(n)$ discovered by Han in his generalization of the Nekrasov-Okounkov formula. Moreover, we obtain corollaries which describe the asymptotic behavior and sign of $a_t(n)$ for large n . (Received September 16, 2008)