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Kathrin Bringmann, Frank Garvan and Karl Mahlburg* (mahlburg@math.mit.edu),
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and quasiweak Maass forms.*

Andrews recently studied combinatorial objects called k -marked Durfee symbols that are related to moments of Dyson's partition rank statistic. In particular, the generating functions $R_{k+1}(q)$ for the k -marked Durfee symbols arise as moments of the rank, which can be studied through a differential equation for Jacobi-like forms. A key result is that $R_{k+1}(q)$ is a quasiweak Maass form (a linear combination of derivatives of weak Maass forms), with a highest component of weight $2k - 1/2$. This is in contrast to most known examples of Maass forms with algebraic integer coefficients, which have weights $1/2$ or $3/2$. As applications, we also prove congruences for the Durfee symbols. (Received January 22, 2008)