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Maria Monks Gillespie* (monks@math.berkeley.edu). *Combinatorics of the q, t -symmetry relation in Macdonald polynomials.*

The Macdonald polynomials $\tilde{H}_\mu(X; q, t)$ are certain symmetric functions in the variables $X = \{x_1, x_2, \dots\}$ with coefficients in $\mathbb{Q}(q, t)$. Arising naturally in the context of the geometry of the Hilbert scheme of points in the plane, these polynomials also exhibit a beautiful symmetry relation in the variables q and t . We investigate the combinatorics of this symmetry relation in light of the combinatorial formula for the Macdonald polynomials discovered by Haglund, Haiman, and Loehr in 2004. The relation is a strict generalization of the well-known equidistribution of the Mahonian statistics inv and maj on permutations. (Received August 30, 2015)