Maria Monks Gillespie* (mgillespie@math.ucdavis.edu), 1528 Walnut St., Apt. 4, Berkeley, CA 94709. On $q,t$-symmetry in Macdonald polynomials and its relation to the $n!$ conjecture. Preliminary report.

We discuss some recent results on $q,t$-symmetry in Macdonald polynomials and how this may help us understand the Garsia-Haiman bigraded $S_n$-modules. In particular, the Carlitz bijection is an alternative to the Foata bijection that proves the equidistribution of the inv and maj statistics on permutations. This bijection can be extended in a way that describes the combinatorics of a certain basis of the Garsia-Procesi modules, which essentially correspond to the $q = 0$ specialization of Macdonald polynomials, and we will present some progress towards extending this correspondence to the general setting. (Received August 28, 2016)