1012-05-51   **Mark D Haiman*** (`mhaiman@math.berkeley.edu`), Dept. of Mathematics, University of California, Berkeley, CA 94703. *New combinatorial developments in the theory of Macdonald polynomials.* Preliminary report.

Combinatorialists have been interested in Macdonald polynomials ever since Macdonald formulated his positivity conjecture in 1988. Despite successes on the proof of the weaker "integrality" conjecture by many people using different methods, and the subsequent proof of the positivity conjecture by geometric means, no real combinatorial understanding was available until the remarkable conjecture last year by Jim Haglund. Haglund's conjecture has now been proved by him, Nick Loehr and me, and there are interesting further developments which should lead to a second and different proof of the positivity conjecture, as well as extensions to non-symmetric Macdonald polynomials and root systems other than type A. (Received August 26, 2005)