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Adriano M. Garsia* (garsia@math.ucsd.edu), 4695 Mt Armet Drive, San Diego, CA 92117,
and **Nolan Wallach** (nwallach@ucsd.edu). *r-QSYM is free over SYM.*

Our main result is a proof of the Florent Hivert conjecture (presented at the FPSAC Taormina conference of 2005), that the algebras of r -Quasi-Symmetric polynomials in x_1, x_2, \dots, x_n are free modules over the ring of Symmetric polynomials. The proof rests on a Theorem that reduces a wide variety of freeness results to the establishment of a single dimension bound. We are thus able to derive the freeness result for the r -Quasi-Symmetric algebras result and the Etingov-Ginsburg Theorem on m -Quasi-Invariants (Mosc. Math. J. 2 (2002), 555–566.) as special cases of a single general principle. Another byproduct of the present treatment is a remarkably simple new proof of the freeness Theorem for 1-Quasi-Symmetric polynomials given in J. Combin. Theory, Ser. A, 104 (2003), no. 2, 217–263. (Received September 09, 2005)