1093-05-358 **Avinash J. Dalal*** (adalal@math.drexel.edu), Avinash J. Dalal, Department of Mathematics, Korman Center 206, 33rd and Market Streets, Philadelphia, PA 19104. *On atom expansions of Macdonald polynomials.* Preliminary report.

A long-standing open problem is to find a combinatorial interpretation for the coefficients in the Schur expansion for Macdonald polynomials

$$H_\mu[X;q,t] = \sum_\lambda K_{\lambda\mu}(q,t) s_\lambda.$$

The Kostka-Foulkes polynomials, $K_{\lambda\mu}(0,t)$, appear in many contexts such as Hall-Littlewood polynomials, affine tensor product multiplicities and they encode dimensions of certain bigraded S_n-modules.

In their study of Macdonald polynomials, Lapointe, Lascoux and Morse found computational evidence for a family of new bases $\{A_\mu^{(k)}(x;t)\}_{\mu_1 \le k}$ for subspaces of the ring of symmetric functions. Most relevant to the work was the empirical study of $\{A_\mu^{(k)}(x;t)\}_{\mu_1 \le k}$ leading ties to representation theory and conjectures that affine Schubert calculus is strongly linked to the theory of Macdonald polynomials.

To this end, we introduce one parameter families of symmetric functions that transition positively with Hall-Littlewood and Macdonald's P-functions and specialize to certain Schubert representatives in affine Schubert calculus. Our work relies on a notion of translation that presents a surprising connection between chains in the strong and weak order poset on the affine Weyl group $\tilde{A}_{n-1}$. (Received August 20, 2013)