1052-05-121 **Justin J. Lambright***, Department of Mathematics, Lehigh University, Bethlehem, PA 18015. *A combinatorial interpretation of coefficients arising in the quantum polynomial ring.*

Let $(\ell_1, \ldots, \ell_n)$ and $(m_1, \ldots, m_n)$ be two weakly increasing sequences of positive integers. Then we can express the monomial $x_{\ell_{u_1}, m_{v_1}} \cdots x_{\ell_{u_n}, m_{v_n}}$ in terms of the natural basis of the quantum polynomial ring $A_n(q)$, which consists of monomials of the form $x_{\ell_1, m_{w_1}} \cdots x_{\ell_n, m_{w_n}}$ with w maximal in the double coset $W_I w W_J$. A combinatorial interpretation of the coefficients of the natural basis elements is given in terms of walks in the Bruhat order. (Received August 24, 2009)