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Transitions for involution Schubert polynomials.

Wyser and Yong defined polynomials representing the cohomology classes of the $O(n)$ -orbit closures on the type A flag variety—these orbits are indexed by involutions in S_n , and we call Wyser and Yong’s representatives involution Schubert polynomials. We give an analogue of Lascoux-Schützenberger’s transition recurrence for these polynomials. Our approach is combinatorial, beginning with a Billey-Jockusch-Stanley-type formula expressing involution Schubert polynomials as sums over appropriate analogues of reduced words which we call involution words, introduced by Richardson and Springer. A key tool is a version of the Little map for involution words. By stabilizing involution Schubert polynomials one obtains involution Stanley symmetric functions, to which the transition recurrence also applies, and we use it to show that involution Stanley symmetric functions are P-Schur-positive. As a consequence we recover various identities between P-Schur functions and skew Schur functions, and obtain enumerations of involution words in terms of shifted standard tableaux. (Received February 16, 2016)