
ED RICHMOND, UBC

Coxeter groups, palindromic Poincaré polynomials and triangle group avoidance.

Let W be a Coxeter group. For any $w \in W$, let P_w denote its Poincaré polynomial (i.e. the generating function of the principle order ideal of w with respect to length). If W is the Weyl group of some Kac-Moody group G , then P_w is the usual Poincaré polynomial of the corresponding Schubert variety X_w .

In this talk, I will discuss joint work with W. Slofstra on detecting when the sequence of coefficients of a Poincaré polynomial are the same read forwards and backwards (i.e. palindromic). The polynomial P_w satisfies this property precisely when the Schubert variety X_w is rationally smooth. It turns out that this property is easy to detect when the Coxeter group W avoids certain rank 3 parabolic subgroups (triangle groups). One consequence is that, for many Coxeter groups, the number of elements with palindromic Poincaré polynomials is finite. Explicit enumerations and descriptions of these elements are given in special cases.