

Serrano, Luis; Stump, Christian

Generalized triangulations, pipe dreams, and simplicial spheres. (English. French summary)

Zbl 1355.05078

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Summary: We exhibit a canonical connection between maximal $(0,1)$ -fillings of a moon polyomino avoiding north-east chains of a given length and reduced pipe dreams of a certain permutation. Following this approach we show that the simplicial complex of such maximal fillings is a vertex-decomposable and thus a shellable sphere. In particular, this implies a positivity result for Schubert polynomials. For Ferrers shapes, we moreover construct a bijection to maximal fillings avoiding south-east chains of the same length which specializes to a bijection between k -triangulations of the n -gon and k -fans of Dyck paths. Using this, we translate a conjectured cyclic sieving phenomenon for k -triangulations with rotation to k -flagged tableaux with promotion.

For the entire collection see [Zbl 1239.05002].

MSC:

- 05B50 Polyominoes
- 05A15 Exact enumeration problems, generating functions
- 05E10 Combinatorial aspects of representation theory

Cited in **3** Documents

Keywords:

k -triangulation; enumerative combinatorics; pipe dream; fans of Dyck paths; flagged Schur function; Schubert polynomial; Edelman-Greene insertion

Full Text: [Link](#)