

Parallelogram polyominoes, the sandpile model on $K_{m,n}$, and a q, t -Narayana polynomial

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In this talk I will highlight some results from a recent paper which was motivated by a correspondence between bivincular patterns and composition matrices.

We classify recurrent configurations of the sandpile model on the graph $K_{m,n}$ in terms of polyominoes. A canonical toppling process on these recurrent states gives rise to a "bounce" path within the corresponding polyomino. This bounce path gives rise to a polynomial that we call the q, t -Narayana polynomial. We discuss this q, t -Narayana polynomial and its relation to the well-known q, t -Catalan polynomial.

(This is joint work with Yvan Le Borgne.)