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Geometric grid classes of permutations

A geometric grid class consists of those permutations that can be "drawn" on a specified set of line segments of slope ± 1 in the plane. Thus geometric grid classes are permutation classes, meaning that they are closed downward under the permutation containment order. I will discuss recent work with Albert, Atkinson, Bouvel, and Ruskuc which, using a mixture of geometric and language theoretic methods, establishes that geometric grid classes are among the best behaved permutation classes. In particular, these classes can be specified by finite sets of forbidden patterns, are partially well-ordered (i.e., don't contain infinite antichains), and have rational generating functions.