

1079-05-406

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02139. *Lattice Path Matroid Polytopes.*

Fix two lattice paths P and Q from $(0, 0)$ to (m, r) that use East and North steps with P never going above Q . Bonin et al. show that the lattice paths that go from $(0, 0)$ to (m, r) and remain bounded by P and Q can be identified with the bases of a particular type of transversal matroid, which we call it a lattice path matroid.

In this paper, we consider properties of the lattice path matroid polytopes. These are the polytopes associated to the lattice path matroids. We investigate their face structure, decomposition, triangulation, Ehrhart polynomial and volume. We also briefly look over Ehrhart polynomial of Alcoved polytopes as well as the Eulerian-Catalan numbers which are closely related. (Received January 18, 2012)