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Anton Dochtermann* (dochtermann@math.utexas.edu), San Marcos, TX. *Monomial ideals from restricted chip-firing*. Preliminary report.

Associated to a graph G on vertex set $[n + 1]$ is a monomial ideal M_G called the ‘ G -parking function ideal’. A list of (possibly redundant) generators of M_G is indexed by the nonempty subsets of $[n]$. The ideal M_G is a certain initial ideal of the binomial toppling ideal, which encodes the linear equivalence of divisors on G . It has been shown that the Betti numbers of M_G are encoded by certain data coming from the flats of the underlying matroid of G .

Motivated by Backman’s notion of ‘restricted set chip-firing’, we study the monomial subideals of M_G generated by only the subsets of $[n]$ of size two. If G is the complete graph K_{n+1} , we show that the Betti numbers of these ideals are given by certain ‘non-crossing’ subforests of the bipartite graph $K_{2,n}$. By interpreting this data as coming from as a pair of fans dual to the simplex, we generalize the construction to more general graphs by identifying cones in these fans. (Received August 30, 2016)