1156-05-373 **Anton Dochtermann*** (dochtermann@txstate.edu). *Parking functions, skeleta, and syzygies of monomial ideals.* Preliminary report.

Associated to a graph $G$ on vertex set $[n+1]$, Postnikov and Shapiro introduced an artinian monomial ideal $M_G$ called the '$G$-parking function ideal'. The dimension of $M_G$ is given by the number of spanning trees of $G$, and a (possibly redundant) list of 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 $G$. A cellular resolution of $M_G$ is supported on the barycentric subdivision of a simplex, and the Betti numbers of $M_G$ are encoded by data coming from the flats of the underlying matroid of $G$.

Motivated by Backman's notion of 'restricted set chip-firing' we study the '$k$-skeleton' ideals $M_G^{(k)}$, subideals of $M_G$ generated by subsets of $[n]$ of size at most $k+1$. Here we focus on homological properties. For $G = K_{n+1}$ the complete graph, we use discrete Morse theory to describe a minimal cellular resolution of $M_G^{(k)}$. For the case $k = 1$ we show how, for a large class of graphs $G$, deformations of certain fan arrangements lead to interpretations of the Betti numbers of the ideal $M_G^{(1)}$. Parts of this are joint work with Patrik Norén. (Received January 28, 2020)