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78702. *G-parking function ideals, lattice points, and free resolutions*. Preliminary report.

Associated to a graph G , Postnikov and Shapiro introduced a monomial ideal M_G whose standard monomials are in bijection with G -parking functions. The ideal M_G has close connections to commutative algebra of the abelian sandpile model (or ‘chip-firing’ on G) via Gröbner degeneration. We study related monomial ideals that arise from lattice points of the associated graphical zonotope, and show how to recover resolutions of M_G for various monomial orders. This leads to combinatorial interpretations of Betti numbers as well as generalizations to other polymatroidal contexts. Part of this is joint work with Raman Sanyal. (Received January 19, 2016)