1159-05-125 **Galen Dorpalen-Barry*** (dorpa003@umn.edu). *Whitney Numbers for Poset Cones.*

Hyperplane arrangements dissect $\mathbb{R}^n$ into connected components called chambers, and a well-known theorem of Zaslavsky counts chambers as a sum of nonnegative integers called Whitney numbers of the first kind. His theorem generalizes to count chambers within any cone defined as the intersection of a collection of halfspaces from the arrangement, leading to a notion of Whitney numbers for each cone. Cones within the braid arrangement, consisting of the reflecting hyperplanes $x_i = x_j$ inside $\mathbb{R}^n$ for the symmetric group, thought of as the type A_{n-1} reflection group. Here, cones correspond to posets, chambers within the cone correspond to linear extensions of the poset, and the Whitney numbers of the cone interestingly refine the number of linear extensions of the poset. We interpret this refinement for all posets as counting linear extensions according to a statistic that generalizes the number of left-to-right maxima of a permutation. This is joint work with Vic Reiner and Jang Soo Kim, see 1906.00036. (Received August 03, 2020)