

1024-05-186

Nathan Reading* (nathan_reading@ncsu.edu), NC State University, and **David E Speyer** (speyer@umich.edu), University of Michigan. *Dual combinatorics of clusters.*

A cluster complex of finite type can be realized concretely in terms of a crystallographic root system. Clusters of variables correspond to “clusters” of roots. The positive span of each cluster is a cone, and this collection of cones defines a complete fan with interesting geometric and combinatorial properties. In this talk, I will discuss a dual approach to the cluster complex. In the dual setting, the cluster complex arises not by specifying which sets of vectors span cones, but rather by coarsening the Coxeter fan associated to the root system. (The Coxeter fan is the fan defined by the hyperplanes orthogonal to the roots.) As an example of what makes the dual approach interesting: “g-vectors” arise naturally in the dual setting as expansions in the basis of fundamental weights, just as “denominator vectors” arise in the usual setting as expansions in the basis of simple roots. (Received January 08, 2007)