1069-05-216 **Robert G. Donnelly*** (`rob.donnelly@murraystate.edu`), Department of Mathematics and Statistics, 6C Faculty Hall, Murray State University, Murray, KY 42071. *Poset models for irreducible Weyl characters.*

Irreducible Weyl characters are natural generalizations of Schur functions from symmetric function theory. In this general setting, the underlying symmetry group is a Weyl group. A "splitting poset" for an irreducible Weyl character is an edge-colored ranked poset possessing a certain structural property and a natural weighting of its elements so that the weighted sum of poset elements is the given Weyl character. Connected such posets are rank symmetric and rank unimodal and have nice quotient-of-product expressions for their rank generating functions. Supporting graphs, Kashiwara's crystal graphs, Littelmann's path model, and Stembridge's admissible systems provide examples of such posets arising in Lie theory. A cancelling argument of Stembridge is reworked to provide sufficient combinatorial conditions for a given poset to be splitting. In a companion result, Gansner's symmetric chain decomposition of chain products by parenthesization is used to establish a different set of sufficient conditions. These results are applied to demonstrate that certain distributive lattices are splitting posets for the irreducible Weyl characters corresponding to simple Lie algebra representations whose highest weights are combinations of minuscule or other special fundamental weights. (Received January 24, 2011)