1024-05-63   **Thomas Lam** (`tfylam@fas.harvard.edu`) and **Mark Shimozono*** (`mshimo@vt.edu`), 460 McBryde Hall, Department of Mathematics, Virginia Tech, Blacksburg, VA 24061-0123. *Dual graded graphs for Kac-Moody algebras.* Preliminary report.

Stanley's differential posets and Fomin's dual graded graphs are combinatorial constructions which yield enumerative identities. The prototypical such identity asserts the equality of the number of permutations and the number of pairs of standard Young tableaux of the same shape. This identity can be proved using the Robinson-Schensted bijection. For any Kac-Moody algebra, central element, and dominant weight, we construct a pair of dual graded graphs, one a labeling of the left weak Bruhat order on the Weyl group W depending on the central element, and the other, a labeling of the strong Bruhat order on W depending on the dominant weight, thereby obtaining identities involving colored permutations and labeled chains in the strong and weak Bruhat orders on W. As special cases, using the affine algebras of types A and C, we recover the Robinson-Schensted row insertion bijection and the Sagan-Worley shifted tableau insertion. Our construction is related to the Schubert calculus for the homology and cohomology of the affine Grassmannians. (Received December 21, 2006)