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Nicholas Teff* (teffnico@grinnell.edu), Department of Mathematics and Statistics, Grinnell College, Grinnell, IA 50112-1690. *Divided difference operators for regular semisimple Hessenberg varieties.*

The cohomology ring of a regular semisimple Hessenberg varieties affords a representation of the symmetric group that generalizes the Springer representation and has found recent applications in the long-standing $(3+1)$ -conjecture for the chromatic symmetric function. Divided difference operators are recursive maps that construct the cohomology basis of Schubert classes for the complete flag variety.

In this talk, I discuss the existence of divided difference operators that construct a cohomology basis for a regular semisimple Hessenberg variety. This construction uses a combinatorial construction of (equivariant) cohomology called GKM theory. This construction allows us to use the combinatorics of the Bruhat order of the symmetric group to define the divided difference operator. (Received August 26, 2013)