1077-14-2792   **Julianna S Tymoczko*** (`julianna-tymoczko@uiowa.edu`), Math and Stats Department, Clark Science Center, Smith College, 44 College Lane, Northampton, MA 01063. *Regular nilpotent Hessenberg varieties.*

Regular nilpotent Hessenberg varieties are a family of subvarieties of the flag variety with important applications in representation theory, quantum cohomology, algebraic geometry, combinatorics, and other fields. We will discuss a paving by affines of the regular nilpotent Hessenberg varieties of arbitrary Lie type (which gives a natural cohomology basis), and a geometric proof that their homology injects into that of the flag variety. Time permitting, we will also discuss some representations that arise. Some of this work is joint with Erik Insko (University of Iowa). (Received September 22, 2011)