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Martha Precup* (mprecup@math.northwestern.edu) and **Megumi Harada**. *The cohomology of abelian Hessenberg varieties.*

Hessenberg varieties are subvarieties of the flag variety with important connections to representation theory, algebraic geometry, and combinatorics. These varieties have gained recent attention due to a conjecture of Shareshian and Wachs relating the chromatic quasisymmetric function of the incomparability graph of a unit interval order to the dot action representation on the cohomology of an associated regular semisimple Hessenberg variety. In this talk, we will discuss an inductive formula for the Betti numbers of certain regular Hessenberg varieties called abelian Hessenberg varieties. Using a theorem of Brosnan and Chow, this formula yields an inductive description of the corresponding chromatic quasisymmetric function. This formula also gives another proof of the Stanley-Stembridge conjecture in this case, and generalizes a result of Stanley. (Received September 26, 2017)