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Erik A Insko* (erik.insko@yahoo.com), 1415 SANDRA DRIVE, Fort Myers, FL 33901, and **Martha Precup** and **Alexander Woo**. *Combinatorial descriptions of cell-closures and singular loci of regular Hessenberg varieties*. Preliminary report.

Regular Hessenberg varieties are subvarieties of the flag variety with important connections to representation theory, algebraic geometry, and combinatorics. Like Schubert varieties, the structure of semisimple Hessenberg varieties can be studied using the combinatorics of the Weyl group. In this talk we will define these varieties and use the combinatorics of Weyl groups and their root systems to describe the closures of Hessenberg-Schubert Cells and give a combinatorial criterion for identifying singular points in regular Hessenberg varieties. (Received September 21, 2021)