

ALGEBRAIC GEOMETRY AND COMMUTATIVE ALGEBRA SEMINAR

Speaker: Martha Precup
Washington University, St. Louis



Date: Tuesday, November 29, 2022

Time: 2:30 PM

Location: 258 Hurley Hall

Zoom URL: NA

Lecture Title:

The cohomology of nilpotent Hessenberg varieties and the dot action representation

Abstract

In 2015, Brosnan and Chow, and independently Guay-Paquet, proved the Shareshian--Wachs conjecture, which links the combinatorics of chromatic symmetric functions to the geometry of Hessenberg varieties via a permutation group action on the cohomology ring of regular semisimple Hessenberg varieties. This talk will give a brief overview of that story and discuss how the dot action can be computed in all Lie types using the Betti numbers of certain nilpotent Hessenberg varieties. As an application, we obtain new geometric insight into certain linear relations satisfied by chromatic symmetric functions, known as the modular law. This is joint work with Eric Sommers.