

Northeastern University



Mathematics Department

Geometry, Physics, and Representation Theory Seminar

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Thursday, January 9, 2:50-3:50 pm, Lake Hall 509

**Some results on components of Springer fibers and
other Hessenberg varieties**

Abstract

The Springer fiber of a linear operator X is the subvariety of the flag variety that is “fixed” by X . Hessenberg varieties are a generalization of Springer fibers: they consist of the flags that are “moved” by X only to a certain extent, as measured by a second parameter H . The geometry of Springer fibers and Hessenberg varieties encodes deep information about representations of the symmetric group. However, the varieties themselves are not well understood. In this talk, we introduce Springer fibers and Hessenberg varieties, describe some of their combinatorial and representation-theoretic context, and sketch some results about cell decompositions (including closure relations) in certain cases.