

PRAIRIE MATH COLLOQUIUM

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**Determinants, Schubert
varieties, and quiver
representation varieties**



**Mathematics
and
Statistics**

Date: Friday March 20, 2020

Time: **2:30 - 3:30 PM**

Room: Live stream at

<https://zoom.us/j/975938030?pwd=c2ZycGNNZWx6dVBFSXViU056RG5FUT09>

Abstract: Determinantal varieties are algebraic varieties defined by the simultaneous vanishing of minors of matrices. They are important in mathematics because many naturally occurring algebraic varieties have determinantal structure.

In this talk, I'll focus on two such families of algebraic varieties: (i) Schubert varieties in flag varieties and multiple flag varieties; and (ii) representation varieties of Dynkin quivers. The study of each family is motivated by questions in algebraic geometry and representation theory and has led to beautiful combinatorics. Furthermore, each family contains, as special cases, classes of determinantal varieties of independent interest.

I'll discuss an ongoing research program on unifying problems about the equivariant geometry of representation varieties of Dynkin quivers with the corresponding problems for Schubert varieties in multiple flag varieties (joint with Ryan Kinser), as well as some consequences on combinatorial formulas for degeneracy loci (joint with Ryan Kinser and Allen Knutson).