

Descriptif des mini-cours / Mini-courses description

- **Combinatorics of Schubert Calculus**, [Maria Gillespie](#) (University of California, Davis)

Abstract. Given four fixed lines in three dimensions, how many lines pass through all four of them? This mini-course will serve as a broad introduction to the theory of Schubert calculus, a collection of combinatorial and algebraic techniques for solving linear intersection problems such as these. We will begin with the basics of the partition theory and symmetric function theory that describes Schubert calculus in the type A Grassmannian and complete flag variety. Time permitting, we will discuss the combinatorics of Schubert calculus in other Lie types, in equivariant or K-theoretic Schubert calculus, and in other variants.

- **Algebraic combinatorics and representations of Cherednik algebras**, [Stephen Griffeth](#) (Universidad de Talca)

Abstract. This short course will provide an introduction to some of the interaction between Cherednik algebras and algebraic combinatorics. A number of rings of interest in algebraic combinatorics and mathematical physics arise as irreducible representations of Cherednik algebras. The most significant examples are the diagonal coinvariant ring (and suitable versions of it for other complex reflection groups), the Garsia-Haiman modules arising in the study of Macdonald polynomials, and the Verlinde algebras.

- **The Combinatorics of Symmetric Functions**, [Jeff Remmel](#) (University of California, San Diego)

Abstract. We will give a series of talks that develops the combinatorics of symmetric functions, quasisymmetric functions, and plethysm that is needed to understand the combinatorics of Macdonald polynomials and some of the combinatorics behind the various generalization of the shuffle conjecture.