

Eirini Chavli

Title: ***Complex reflection groups, braid groups and Hecke algebras***

Abstract: Two decades ago, Broue, Malle and Rouquier published a paper in which they associated to every complex reflection group two objects which were classically associated to real reflection groups: a braid group and a Hecke algebra. Their work was further motivated by the theory, developed together with Michel, of “Spetses”, which are objects that generalise finite reductive groups in the sense that their associated Weyl groups are complex reflection groups. In this talk we explain these two objects and we will focus on the properties and representation theory of the Hecke algebras.

Tiago Cruz

Title: ***A-covers***

Abstract: In this talk, we will study the notion of A -cover for a given resolving subcategory A . This notion generalizes the notion of faithful quasi-hereditary cover introduced by Rouquier. The Schur algebra is a classic example of a faithful quasi-hereditary cover of the group algebra of the symmetric group. If time permits, we will compute for which values i the integral Schur algebra is an i - A cover of the integral group algebra of the symmetric group for some resolving subcategories A .

Peter Fiebig

Title: ***Arithmetic properties of affine moment graphs***

Abstract: Affine moment graphs exhibit remarkable arithmetic properties. In the talk I will give some examples of this, and I will show how affine moment graphs are connected to the problem of determining Weyl module multiplicities for tilting modules of reductive algebraic groups.

Ghislain Fourier

Title: ***The framework of linear degenerate flag varieties***

Abstract: I'll recall flag varieties and Schubert varieties, and building on that linear degenerations of these varieties. We will briefly discuss PBW and toric degenerations along the way. This first part is mainly along important examples and is meant to be an introduction for Master and PhD-students. The second part is dedicated to discussions on recent developments and open questions, with combinatorial, geometrical and/or representation theoretical flavor.

Martin Kalck

Title: ***Relative singularity categories***

Abstract: Relative singularity categories have been studied by Thanhoffer de Völcsey and Van den Bergh (and independently in our joint works with Burban and Yang) in relation with Amiot's generalized cluster categories. More recently, they have been applied in a homological approach to the Minimal Model Program in birational geometry, by Hua & Keller, Booth and upcoming work of Karmazyn & Wemyss. Relative singularity categories also play a key role in our joint work with Karmazyn on Knörrer-type equivalences for cyclic quotient surface singularities. This led to explicit semi-orthogonal decompositions of derived categories of all projective toric surfaces by Karmazyn, Kuznetsov & Shinder. We will give an introduction to relative singularity categories, explain how they relate to the singularity categories of Buchweitz and Orlov and discuss examples and applications. This is based on ongoing joint work with Dong Yang.

Kunda Kambaso

Title: *PBW Filtration and Bases for Demazure Modules in Type A_n .*

Abstract: The PBW filtration on the highest weight representations in type A_n have been studied by E. Feigin, G. Fourier and P. Littelmann. In particular, they constructed a basis for the associated graded space labeled by lattice points of some nice polytopes (the FFLV polytopes). A similar construction has been done by G. Fourier for Demazure modules associated to triangular Weyl group elements. In this talk, I'll focus on non-triangular Weyl group elements and present some progress I have made in this direction. This is based on ongoing work which is part of my PhD.

Ksenija Kitanov

Title: *Higher-order congruence relations on affine moment graphs*

Abstract: With any moment graph one can associate its structure algebra, a certain graded commutative algebra over a polynomial ring. For the affine case, after evaluating one variable of this polynomial ring at 0, quite surprising divisibility relations emerge. These relations can be regarded as a generalization of ordinary moment graph relations that define sections of sheaves on moment graphs, and thus we call them higher-order congruence relations.

Emily Norton

Title: *Calibrated representations of the degenerate affine periplectic Brauer algebra*

Abstract: The degenerate affine periplectic Brauer algebra has only recently been defined; it is a "super" version of Nazarov's degenerate affine Brauer algebra. It has the degenerate affine Hecke algebra as a quotient, and like the degenerate affine Hecke algebra, it has a large polynomial subalgebra. Where the degenerate affine Hecke algebra also has the group algebra of the symmetric group as a second important subalgebra, the degenerate affine periplectic Brauer algebra has the periplectic Brauer algebra which is larger and less well understood. Recent work by Coulembier, Coulembier-Ehrig, and Barbier-Cox-de Visscher has greatly advanced the representation theory of the periplectic Brauer algebra, but the representation theory of the degenerate affine periplectic Brauer algebra has not yet been studied. We begin the project of its representation theory by studying its calibrated representations: those on which each generator of the polynomial subalgebra acts by a diagonal matrix. This is joint work with Zajt Daugherty, Iva Halacheva, and Mee Seong Im.

Daniel Tubbenhauer

Title: *2-representation theory of Soergel bimodules*

Abstract: This talk will be an introduction to the 2-representation theory of finitary 2-categories, of which we think as being a categorification of the representation theory of finite-dimensional algebras. An example of such is the 2-representation theory of Soergel bimodules, which categorifies the representation theory of Hecke algebras.

Patrick Wegener

Title: *Non-reduced reflection factorizations of Coxeter elements*

Abstract: In 2010 Igusa and Schiffler showed that two reduced reflection factorizations of a Coxeter element in a Coxeter group of finite rank can be obtained from each other by an action of the braid group, also known as Hurwitz action. In this talk we will address the question to which extend this result also holds for non-reduced reflection factorizations. (This is joint work with Sophiane Yahiatene.)