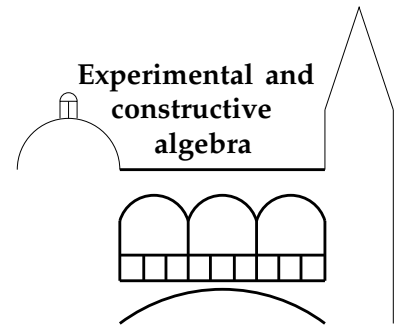


Graduiertenkolleg

Experimentelle und konstruktive Algebra



Kolloquiumsvortrag

Dienstag, 09. Oktober 2018, 14:15 Uhr, Hörsaal IV

CHRISTOPH SCHÖNNENBECK (LEHRSTUHL D FÜR MATHEMATIK):
Crystal Maths: Ariki's Branching Rule and the Crystal Graph

In earlier talks we have seen that Iwahori-Hecke algebras are deformations of the group algebras of Coxeter groups, i.e. real reflection groups. This construction has been generalised by Ariki and Koike and independently by Broué and Malle in the early 1990's to complex reflection groups, yielding the so-called *cyclotomic Hecke algebras*. The most important subfamily of such algebras consists of *Ariki-Koike Algebras*, which are deformations of group algebras of the groups $C_\ell \wr S_n$, where C_ℓ is the cyclic group with ℓ elements and S_n is the full symmetric group on n letters.

In this talk we will cover some combinatorial aspects of the representation theory of Ariki-Koike algebras: As the representation theory of the symmetric group is governed by partitions, the representation theory of Ariki-Koike algebras is governed by multipartitions, i.e. tuples of partitions.

In the first half of the talk we will study the combinatorics of multipartitions and define the so-called *crystal graph*, a directed graph whose vertices are certain multipartitions and whose edges are controlled by a combinatorial rule.

In the second part of the talk we will see how the crystal graph relates to the representation theory of Ariki-Koike algebras, in particular to parabolic induction. We finish by stating a new(ish) result about the number of irreducible constituents of parabolically induced modules, showing in particular that they are always reducible.

Wir laden alle Interessierten herzlich ein.