

Representation Theory, Geometry & Combinatorics Seminar

Organizer: M. Haiman and N. Reshetikhin

Wednesday, 4:00–6:00pm, 939 Evans

Sept. 16 **David Hill**, UCB

An Overview of the Categorification of Quantum Groups

This talk is an introduction to some algebraic aspects of the categorification of quantum groups associated to arbitrary Cartan datum. In the course of the talk we will review some (now classical) results involving the categorification of Kac-Moody algebras of type A and B using certain categories of modules over affine Hecke algebras and affine Hecke-Clifford algebras, respectively. We will then describe a family of algebras recently introduced by Khovanov and Lauda, and independently by Rouquier. The Grothendieck group of a category of modules over one such algebra is isomorphic (as a twisted bialgebra) to “half” of an associated quantum group. Time permitting, we will discuss some conjectures pertaining to the representation theory of these algebras and recent progress in this direction.

This talk will be accessible to graduate students and we hope that it will serve as an overview of some of the (many) topics of interest in the RTGC seminar.