

HIGHER LEVEL AFFINE HECKE ALGEBRAS

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This is a joint work with Catharina Stroppel.

KLR algebras are introduced by Khovanov-Lauda and Rouquier to categorify quantum groups. For each weight Λ , the KLR algebra R has a special quotient R^Λ (called cyclotomic quotient) that categorifies the simple module $L(\Lambda)$ over a quantum group. It is proved by Brundan-Kleshchev and Rouquier that the cyclotomic quotient R^Λ is isomorphic to some similar quotient of the affine Hecke algebra.

Ben Webster has defined new algebras (called tensor product algebras) that generalize KLR algebras. The cyclotomic quotients of the tensor product algebras categorify tensor products of simple modules over a quantum group. However, tensor product algebras have no known analogue from the Hecke side. In my talk I introduce such an analogue called "higher level affine Hecke algebra". This new algebra contains the usual affine Hecke algebra. This algebra also has a special quotient that is isomorphic to the cyclotomic quotient of the tensor product algebra.