BEN WEBSTER, University of Waterloo/Perimeter Institute
Centers of cyclotomic Hecke algebras

Cyclotomic Hecke algebras (or Ariki-Koike algebras) are a natural class of generalizations of the Hecke algebras of types A and B. Despite decades of study, one of the most basic questions about them has remained open: what is their center? There are natural generalizations of the Jucys-Murphy elements, whose symmetric polynomials are obviously central; it has long been expected that all central elements have this form. While straightforward when the algebra is semi-simple, and known from work of Francis-Graham and Brundan in many special cases, at arbitrary parameters it proved surprisingly resistant to proof. I'll discuss a recent proof (joint with Jun Hu, Andrew Mathas and Lei Shi) that confirms this conjecture. The key input is geometric: an isomorphism between the centers of blocks and the cohomology of quiver varieties of affine type A, which intertwines the action of a "loop algebra."