Workshop on Representation Theory, Geometry & Combinatorics

Organizer: Mark Haiman

Monday June 2–Friday June 6, 9:30–5:00pm, Bechtel 120ABC

Josh Sussan, UC Berkeley

Category O and $sl(k)$ link invariants

We construct a functorial invariant of oriented tangles on certain singular blocks of category O. Parabolic subcategories of these blocks categorify tensor products of fundamental $sl(k)$ representations. Projective functors restricted to these categories give rise to a functorial action of the Lie algebra. On the derived category, Zuckerman functors categorify $sl(k)$ homomorphisms. Cones of natural transformations between the identity functor and Zuckerman functors are assigned to crossings and these assignments satisfy the appropriate tangle relations.