

Sam Gunningham

Character stacks and (q-)geometric representation theory

I will discuss applications of geometric representation theory to topological and quantum invariants of character stacks. In particular, I will explain how generalized Springer correspondence for class D-modules and Koszul duality for Hecke categories encode surprising structure underlying the homology of character stacks of surfaces (joint work with David Ben-Zvi and David Nadler). I will then report on some work in progress with David Jordan and Pavel Safronov concerning a q-analogue of these ideas. The applications include an approach towards Witten's conjecture on the fi dimensionality of skein modules, and methods for computing these dimensions in certain cases.