

Title: Higgs branches, Coulomb branches, and link homology

Abstract: I will review work with N. Garner, J. Hilburn, A. Oblomkov, and L. Rozansky on the realization of triply graded link homology in 3d TQFT's (A and B twists of 3d $N=4$ gauge theories). In the 3d B model, this reproduces Oblomkov-Rozansky's construction of link homology via matrix factorizations, involving coherent sheaves Hilbert scheme. In the 3d A model, for algebraic knots, this is related to Gorsky-Oblomkov-Rasmussen-Shende's construction involving affine Springer fibers. I will explain how the two are related via 3d mirror symmetry, and what the 3d A model predicts for non-algebraic knots and braid group representations.