

1176-14-330

Tina Kanstrup* (tkanstrup@umass.edu). *Algebraic-geometric approaches to link homology*. Preliminary report.

Macdonald polynomials show up in connection with Hilbert schemes. In particular in the calculation of Khovanov-Rozansky triply graded link homology, HHH, of torus knots. There are many different approaches to calculating HHH, several of which are of an algebraic-geometric nature. In particular, the Gorsky-Negut-Rasmussen conjecture stipulates that HHH of a link can be expressed as the cohomology of a certain sheaf on the flag Hilbert scheme. This conjecture has mostly been proved by Oblomkov-Rozansky in the alternative language of Matrix Factorizations. The goal of this work in progress is to unify some of the different approaches to HHH by relating the geometry of the categories involved. Furthermore, we seek to give a conceptual explanation of why the Hilbert scheme appears naturally in the context of link homologies. (Received January 25, 2022)