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Tina Kanstrup* (tkanstrup@math.umass.edu). *Link homologies and Hilbert schemes via representation theory*. Preliminary report.

In knot theory one of the main ways to tell if two links are isotopic is to calculate link invariants. One of the most famous ones is Khovanov-Rozansky triply graded link homology. The definition is completely algebraic but it has been conjectured by Gorsky, Negut and Rasmussen that it can also be calculated geometrically in terms of cohomology of sheaves on Hilbert schemes. A result of a similar nature but in terms of matrix factorization was proved by Oblomkov and Rozansky. In this talk we'll use representation theory to relate the two, and show that their construction is natural from the point of view of representation theory. (Received January 22, 2020)