

The Contraderived Category of Linear Factorizations

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In this talk I describe a notion of weak equivalence for linear factorizations (matrix factorizations with not necessarily free components) producing the homotopy category of matrix factorizations as the associated derived category. This is in analogy with the description of the homotopy category of projectives over a ring in terms of the derived category. The presence of the contraderived category sometimes simplifies the work with matrix factorizations; for example, it can be used to give an alternative construction of Khovanov-Rozansky's categorifications of the Quantum $\mathfrak{sl}(k)$ knot invariants.