Derived categories, B-branes, and GLSMs

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Micro-Abstract:

I'll give an overview of the theory of derived categories of GIT quotients; or in physics terms, B-brane transport in gauged linear sigma models. I will try to focus on the key examples, minimizing technical details and proofs. Topics will include ‘window' subcategories, non-commutative resolutions, and matrix factorizations.

Lecture Topics:

- Brief, non-technical review of derived categories.

- GIT

- Windows/derived equivalences/autoequivalences for standard flops

-Matrix factorizations + Knorrer periodicity + Orlov's theorem

-Non-commutative resolutions, i.e. phases with continuous unbroken symmetry.